

A History of the Committee on Science and Technology



**85th-110th Congresses
1958-2008**

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Committee on Science and Technology
110th Congress
(2008)

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Foreword

Congressman Bart Gordon (D-TN)
Chairman,
U.S. House Committee on Science and Technology



My goal as chairman has been for this to be the Committee of good ideas and consensus. I'm proud that we pass the overwhelming majority of our bills with unanimous, bipartisan support.

In the 50 years since the Committee on Science and Technology was created, the U.S. has made tremendous breakthroughs. We've watched a man walk on the moon. We've peered into the future revealed by our own DNA. We send ideas, currency, and images in seconds, instead of hours or days, since the advent of the Internet.

The next 50 years will see a country and a world even hungrier for scientific progress. One of the most compelling issues we will face is ensuring our own country's competitiveness in the global marketplace. Today, half of the world's workers make less than \$2 a day. We cannot and should not compete with that. Instead, we have to compete at a higher level with better skills and higher productivity. We have to nurture the scientists who will be making discoveries and the students who will fill technical jobs in all sectors of the economy.

With this in mind, in 2005 the Committee asked the National Academies to look down the road and determine what we needed to stay competitive. The ensuing report, "Rising Above the Gathering Storm," painted a picture of a stagnating U.S. economy, an educational system that did not prepare its students for the jobs needed, and the U.S. losing its place as a world

leader in scientific progress and made recommendations on how to address these issues.

At the beginning of the 110th Congress, we put these recommendations into legislation that became the America COMPETES Act. Signed into law in August 2007, COMPETES invests in basic research, strengthens science, technology, engineering and math (STEM) education programs, and addresses our need for innovation in the energy sector by creating an Advanced Research Projects Agency for Energy (ARPA-E) modeled after the successful DARPA program that brought us stealth technology, GPS, and the Internet.

In addition, the Committee played a central role in enacting the Energy Independence and Security Act, which was signed into law in December 2007. The Committee moved eight bills plus several other amendments that were packaged into this law – addressing energy technology needs on biofuels, solar, geothermal, ocean and hydrokinetic, carbon capture and sequestration (CCS), energy storage, industrial energy efficiency, and hydrogen, as well as smart grid technologies and energy efficiency for appliance, buildings, and vehicles.

I hope that this is just the beginning of what this Committee will do over the next 50 years. From scientists in the lab and students in the classroom to researchers in the field and consumers in the marketplace, I expect the Science and Technology Committee will continue to rise to meet a bright and sustainable future.

A handwritten signature in black ink that reads "Bart Gordon". The signature is written in a cursive, flowing style.

Bart Gordon
Chairman

Foreword

Congressman Ralph Hall (R-TX)
Ranking Member,
U.S. House Committee on Science and Technology



In the 28 years since I was first elected to the U.S. House of Representatives, I have been pleased to be an active member of the Science and Technology Committee, including service as ranking member, both as a Republican and as a Democrat, and as chairman of the Space Subcommittee. The Committee's rich history reflects how

bipartisanship, coupled with science-based policymaking, can advance innovation and research that benefit all Americans.

Recognizing that innovation is the key to U.S. economic success, the Committee has recently focused its efforts on strengthening the U.S. research enterprise and American high-tech industry. By aggressively promoting STEM education at all levels, this Committee has made a determined commitment to make America more competitive for generations to come.

In my capacity throughout the years, I am proud to have maintained strong support for a robust manned spaceflight program at NASA. I believe that manned spaceflight has contributed more to securing America's technological and economic leadership in the world than any other civilian government program. Through both great success and occasional tragedy, NASA has captured the hearts and imaginations of the American people and spawned decades of technological innovation, the benefits of which have far exceeded the cost of investment. If we want to remain economically competitive for future generations, it is imperative that we continue to support manned spaceflight.

Another focus that is sure to remain at the top of the Committee's agenda is the need for cheap, clean, reliable and abundant energy. The U.S. relies too heavily on unstable regimes to provide the energy that runs our economy. The Science and Technology Committee has been at the forefront of efforts to diversify our energy portfolio by promoting renewable and alternative energy sources. This Committee is strategically positioned to help find real solutions to our energy problems, along with finding ways to use our abundant domestic fossil fuel resources more cleanly and efficiently.

I am proud to have served on the Science and Technology Committee for over half of its remarkable history. Our Committee has made great strides in supporting America's scientific enterprise and will continue to play a key role in meeting our nation's challenges in the years to come.

A handwritten signature in black ink that reads "Ralph M. Hall". The signature is written in a cursive, flowing style.

Ralph Hall
Ranking Member



Astronaut Buzz Aldrin, lunar module pilot of the first lunar landing mission, and the U.S. flag on the Moon. (Photo courtesy of NASA)

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Introduction

The U.S. House of Representatives established the Committee on Science and Technology more than 50 years ago. As one of the newer committees on Capitol Hill, it has a long history of bipartisanship and tackling some of the most important challenges facing the nation. The Committee successfully oversaw the reorganization of the space program and ensured NASA met its goal of landing a man on the moon by the end of the 1960s. During the difficult times of the 1970s, the House gave the Committee new jurisdiction in the energy and emerging environmental fields. With a further expansion of responsibilities in the 1980s and 1990s, the Committee's legislative and oversight work included a wide assortment of technology issues as well as intellectual property rights, homeland security, and the development of super-computers and the Internet. In the 21st century the Committee had to confront natural and manmade disasters as well as maintain the nation's technological lead in the sciences and education.

The first written history of the Committee covered the period from its inception through 1979. It was an all encompassing review prepared by subcommittee Chairman Ken Hechler of West Virginia. The work reflected firsthand knowledge of the major events, legislation passed, the Members who served on the Committee and the expert staff assembled to help them in their work. Through the use of its extensive table of contents and epilogue, the researcher can review the wide-ranging activities of the Committee and read extensive quotes by the principals.

When preparing this updated history of the Committee, it was readily apparent that an entirely different approach had to be developed to recount the significant events of the past 50 years. In writing this edition, the authors felt it important not to overburden the reader with a long narrative. Since this project would be done by individuals outside the Committee, Hechler's approach could not be repeated. The new format would be multifaceted and focus on the nature of the Committee's legislative efforts and the presentation of short biographies of each committee chairman.

The landmark legislation component of the project formed the necessary framework for the narrative, but it was insufficient to provide a full picture of the Committee's history. To better understand the Committee's activities and areas of inquiry, the project included a complete review of its jurisdictional history, which afforded the authors the necessary structure as to the scope of the Committee's responsibilities. We made the decision to list all of the full and joint Committee hearings and a review of all the subcommittee hearings in an effort to provide future scholars with the foundation for additional research on the Committee.

The authors would like to thank the Committee and its staff for their assistance and access to Committee records. Special thanks is extended to the Committee's Chief Counsel Jim Turner who provided the essential guidance in identifying the landmark legislation passed between 1958 and the present and to Deborah Samantar for her help with the records of the Committee's hearings. Also, a note of appreciation must be given to the American Law Division of the Library of Congress for their help in accessing Committee records. David Mao, Stuart Carmody, and Joyce Thorpe were especially supportive and demonstrated a superb understanding of the library's collection. As a final thank you, the authors wish to express their gratitude to other members in the Office of the Historian, Dr. Robert V. Remini, Historian of the House, Research Analyst Anthony Wallis, and Office Director Michael Cronin.

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Chronology of Major Events in Federal Science Policy, 1787-2007

- 1787 U.S Constitution gives Congress power “to promote the Progress of Science and useful Arts”
- 1789 First Congress passes Patent and Copyright Acts
- 1804-06 Lewis and Clark Expedition
- 1844 Samuel F. B. Morse receives \$30,000 from Congress to build first telegraph line
- 1849 Smithsonian Institution develops weather observation network
- 1863 National Academy of Sciences Act 12 Stat. 806-07
- 1870 Congress creates Weather Bureau in War Department
- 1890 Congress creates civilian Weather Bureau in Dept. of Agriculture
- 1901 National Bureau of Standards created 31 Stat. 1449-1450
- 1915 national Advisory Committee on Aeronautics created
- 1930 National Institute of Health created, consolidates other federal Medical research programs
- 1941-47 Office of Scientific Research and Development (OSRD) created by executive order; coordinated federal scientific R&D during World War II, including the Manhattan Project
- 1945 *Science—The Endless Frontier*, report by Vannevar Bush, head of OSRD
- 1946 Atomic Energy Act of 1946, created Atomic Energy Commission; commercial nuclear power made possible in 1954
- 1950 National Science Foundation Act, PL 507, with a mission “to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.”
- 1957-58 International Geophysical Year
- 1957 Soviet Union launches *Sputnik* on October 4
- 1958 National Aeronautics and Space Act, PL 85-568
Advanced Research Projects Agency (later DARPA) in DOD
- 1959 Treaty on Antarctica
- 1960 NSF Institutional Support Program, a capital program for university research infrastructure
- 1961 NASA Mercury Program begins; Alan Shepard becomes the first American in space on May 5
- 1962 NASA John Glenn becomes the first American to orbit the earth
- 1962-69 ARPA develops early Internet, ARPAnet launched in 1969
- 1965 NASA First American Space Walk
Environmental Science Services Administration (ESSA) created
- 1967 Weather Bureau renamed National Weather Service
NASA Loss of Apollo 1
- 1969 NASA Apollo 11 lands on the moon

1970 First "Earth Day"
NASA Apollo 13
ESSA becomes National Oceanic and Atmospheric Administration

1972 NSF takes over management of twelve labs of DARPA
Space Shuttle Program authorized, PL 92-304

1973 NASA Skylab
Yom Kippur War; first oil embargo by OPEC on October 17

1974 Energy Research and Development Administration ERDA created in response to oil crisis

1975 NASA Apollo-Soyuz

1976 National Science and Technology Policy, Organization and Priorities Act, PL 94-282; Established Office of Science and Technology Policy in Executive Office of President
NASA Viking 1 and 2 probes reach Mars

1977 NASA Voyager "Grand Tour" of the Solar System

1978 Department of Energy created

1979 Voyager 1 reached Jupiter's orbit
Creation of the Department of Energy

1979 Three Mile Island accident, March 28
Beginning of second oil crisis, April

1980 Synthetic Fuels Corporation created

1981 NASA Space Shuttle Program begins, first launch, April 12

1983 US Antarctic Program established

1985 NSF research in South Pole for ozone loss
Synthetic Fuels Corporation created and abolished

1986 NASA space shuttle *Challenger* disaster

1980s NSF assumes primary financial support and coordination of Internet, NSFnet

1990 NASA Hubble Space Telescope

1990s NSF develops math education standards with National Council of Teachers of Mathematics

1992 Land Remote Sensing Policy Act (Landsat), PL 102-555

1993 NSF supported National Center for Supercomputing Applications at Univ. of Illinois, develop "Mosaic," first web browser

1994 NSF, NASA, and DARPA launch Digital Library Initiative, predecessor of "Google"

1996 NSF discovers Antarctic Ozone hole

1998 NASA International Space Station (ISS)

2000 NSF, with other agencies, develops National Nanotechnology Initiative

2003 NASA space shuttle *Columbia* disaster

2007 America COMPETES (Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science) Act, PL 110-69



The Very Large Array, located near Socorro, New Mexico, consist of 27 radio antennas that are each 25 meters (82 feet) in diameter. It is the most scientifically productive ground-based telescope in the history of astronomy. (Photo courtesy of the National Radio Astronomy Observatory/Associated Universities, Inc.)



Carbon-free electricity from solar and nuclear power. (Photo courtesy of Warren Gretz/Department of Energy/National Renewable Energy Library)

The Development of Federal Science Policy, 1787-1957

Americans have always sought to explore new frontiers. Vannevar Bush, one of the architects of federal science policy, stated in 1945 that the expansion and prosperity of the United States has been through “the product of three factors – the free play of initiative of a vigorous people under democracy, the heritage of great natural wealth, and the advance of science and its applications.” In his report, *Science—The Endless Frontier*, Bush affirmed the fact that without scientific progress, “no amount of achievement in other directions can ensure our health, prosperity, and security as a nation in the modern world.”

Federal government involvement in science, technology, and the advancement of knowledge began with the Continental Congress, in the Northwest Ordinances of 1785 and 1787. Congress ordained that the Northwest Territory be explored and surveyed into townships, with one section reserved to endow public schools. Since the 18th century, the relationship between science, technology, research, and development has been a close one, as Americans created a decentralized system for the advancement of scientific and technological innovation, combining federal government backing with university and privately funded research. The House Committee on Science and Technology is heir to a long history of federal support for exploration, developing technical standards, and energy and environmental research.

In Article I, section 8 of the Constitution, the Founding Fathers granted Congress the power “to promote the Progress of Science and the useful Arts,” initially through granting limited times for “Authors and Inventors the exclusive Right to their respective Writings and discoveries,” along with the power to “fix the Standard of Weights and Measures.” Congress also was given power to “regulate Commerce,” and to make all laws “necessary and proper for carrying into Execution the foregoing Powers.”

Congress quickly assumed its role in encouraging science and technology, passing the first patent and copyright laws in the spring of 1790. Two years later, the Second Congress authorized the first U.S. Mint to set standards of weight for U.S. coinage. In addition to such regulatory legislation, Congress adopted most of Treasury Secretary Alexander Hamilton’s recommendations in his *Report on Manufactures*, December 1791, which proposed that it should be U.S. policy to encourage manufacturing and domestic industries through a system of tariff protection and subsidy to industry. Although most federal policy was designed to protect private innovation, Congress did

subsidize two military arsenals, at Springfield, Massachusetts, and Harpers Ferry, Virginia. It was under this federal sponsorship that the first practical system of interchangeable parts for manufacturing was developed.

The “commerce clause” was the rationale for the most significant scientific study of the early national period, the Lewis and Clark Expedition. After gaining a \$2,500 appropriation from Congress for exploration, President Thomas Jefferson instructed his secretary, Meriwether Lewis, to not only find a passage to the Pacific, but also to make systematic scientific observations of regional geography, soils, animals, mineral production, and record as much as possible about the Indian tribes encountered. With these instructions, the Corps of Discovery was practical and also scientific, revealing the wide range of federal interest during the period.

Federal science policy also encouraged the relation between commerce, science, technological development, and exploration. On March 30-31, 1824, Speaker of the House Henry Clay proposed the adoption of a “genuine American system” that would expand markets and lessen dependence upon foreign trade, providing protective tariffs to safeguard domestic manufacturing and a government sponsored system of internal improvements. In the General Survey Act of 1824, Congress authorized “necessary surveys, plans, and estimates” of roads and canals of national importance for commercial, military, or postal uses.

Although most federal legislation created the broad conditions conducive to technological innovation, Congress occasionally sponsored large, capital-intensive projects. On March 3, 1843, Congress appropriated \$30,000 “for testing the capacity and usefulness of the system of electro-magnetic telegraphs invented by Samuel F. B. Morse,” and for constructing a telegraph line for government use. By May 1844, Morse had completed his telegraph line between the U.S. Capitol and the Baltimore and Ohio Railroad’s Mt. Clare Station near Baltimore, Maryland. On May 24, he made his first public demonstration from the Capitol by sending the message, “What Hath God Wrought.”

In 1829, British scientist James Smithson died and left his entire estate to the United States, to endow “an establishment for the increase and diffusion of knowledge among men.” Congress accepted this unprecedented gift in 1836, and, after much debate, created the Smithsonian Institution in 1846 as a trust administered by a board of regents and a secretary. This private gift to the whole nation provided one model for the support of scientific research and now has grown to become the world’s largest museum complex. Attempts to establish a

national university, however, failed. Americans held a deep suspicion of any single national institution of higher learning and preferred a decentralized, entrepreneurial model for education and research.

President Abraham Lincoln and the 37th Congress (1861-63) enacted two critical pieces of legislation during the Civil War that helped develop the institutions for scientific and technological research. Lincoln signed into law the Land-Grant College Act on July 2, 1862, which Congressman Justin Morrill of Vermont introduced that granted states public lands to endow a college dedicated to the teaching of “agriculture and the mechanic arts.” This federal effort to support state institutions developed into a network of land-grant universities that emphasized practical, scientific research. On March 3, 1863, Congress passed a second piece of legislation which chartered the National Academy of Sciences. Established as a self-perpetuating organization, the academy comprised 50 of the nation’s top scientists named “to investigate, examine, experiment, and report upon any subject of science,” for the federal government. While the scholars served without compensation, Congress authorized appropriations for expenses, which was an early form of contract research. Anticipating the nation’s involvement in World War I, President Woodrow Wilson requested that the Academy establish the National Research Council in 1916 to recruit scientists and technicians, which continued to expand after the war under executive order. Since its chartering, the National Academy of Sciences has expanded several times through peer selection of individuals distinguished in their fields as well as through the establishment of the National Academy of Engineering in 1965 and the Institute of Medicine in 1970.

In the late 19th century, Congress continued its sponsorship of scientific exploration. On March 3, 1879, it authorized the creation of the U.S. Geological Survey as a bureau in the Interior Department with responsibility to examine “the geological structure, mineral resources and products of the national domain.” In the Hatch Experiment Station Act of 1887, Congress supported the development of scientific research in agriculture. Administered by land-grant colleges, these research stations promoted “scientific investigation and experiment respecting the principles and applications of agricultural science.” Although under the jurisdiction of congressional agricultural committees, the Hatch Station Act furthered the principle of direct federal support of scientific research, a precedent that would later be extended to other scientific fields.

The development of standard time zones provided an excellent example of the essential technical initiatives that benefited both private enterprise and public institutions. The British Royal Observatory had

first established Greenwich Mean Time in 1675, but this was only a voluntary standard. Americans initially relied on local sun time to indicate the time of the day, but with the expansion of railroads and the quick movement of people and freight, a national standard was necessary. Meeting privately in Chicago in the fall of 1883, American and Canadian railroad executives standardized four time zones across North America. Congress formally adopted this as a national standard during World War I with the Daily Standard Time Act of March 19, 1918. While daylight saving time proved controversial at the time and was repealed in 1919, standard time zones have remained the law.

Building upon the complexity of rapid industrialization and the expansion of engineering demands, Congress created the National Bureau of Standards (NBS) on March 3, 1901. The federal government invested in it the responsibility for comparing the “standards used in scientific investigations, engineering, manufacturing, commerce, and educational institutions with the standards adopted by the Government.” NBS established the first federal government physical science research laboratory with authority to develop precision instruments to set standards on length, mass, temperature, time, electrical power, as well as develop safety standards for commerce and industry. Within a few years, NBS acquired experimental factories to test manufacturing processes on product quality, which became especially useful during World War I, and also performed the first government studies of aerodynamics.

Although the federal government provided standardization and some encouragement to technological innovation, most scientific research was conducted by private industries and in research universities. In the late 19th century, the dynamic element in higher education shifted from liberal arts colleges to research universities dedicated to the advancement of knowledge. Johns Hopkins University took a leadership role in this approach. Other institutions, such as the University of Chicago, Cornell, Harvard, Columbia, and University of Michigan, soon followed and began to emphasize basic research in the sciences. New philanthropic foundations, such as those created by Andrew Carnegie and John D. Rockefeller, funded much of the growth in basic research in the theoretical sciences, medicine, and the social sciences.

The rise and development of research universities and large philanthropic foundations created the research infrastructure necessary for scientific advances, producing not only graduate training programs, but also incubating basic research. By the early 20th century, a tacit division of labor emerged where basic research belonged in private research universities while the federal government sponsored applied

research, with technical and land grant institutions such as Massachusetts Institute of Technology and University of Illinois occupying a middle ground. The new universities emphasized basic research and graduate instruction for those seeking advanced degrees and those who would work for government agencies. These three institutions, government bureaus, private foundations, and research universities, created a dynamic that strengthened each component and encouraged new avenues of research. The funding of basic scientific investigation in universities by private foundations insulated such research from democratic pressures, allowing the federal government to focus generally on the application and dissemination of knowledge.

The impact of World War I on research and development increased the coordination among universities, government bureaus, and foundations. Wartime necessity accelerated the pace of adaptation of laboratory results into production, not only increasing the scale, but also enabling coordination of scientific effort across disciplinary lines. The war effort also enhanced the research capacities of private industry, such as Bell Labs, which made significant advancements in applied industrial research.

The conclusion of World War I and America's growing apprehension of the realities of the militarization of science, such as the development of poison gas, led to the rapid dismantling of federal government control of scientific research. The military virtually abandoned research and focused almost exclusively on procurement of standard types of weapons and material. During the 1920s, Secretary of Commerce Herbert Hoover, who had made his fortune as a mining engineer, created a voluntary system to encourage "pure and applied scientific research as the foundation of genuine labor-saving devices, better processes, and sounder methods." Utilizing the expertise of NBS, Hoover encouraged cooperative scientific enterprises and trade associations to increase industrial research. Hoover also tried to shift business and especially government agencies to fund basic research, attempting to reverse the trend toward applications. However, with the onset of the Great Depression, most of the support for basic research was left to private universities and philanthropic foundations, as governmental resources were focused on dealing with the immediate economic crisis.

Scientific research was significantly disrupted during the early years of the 1930s, as government, industry and universities dramatically cut back research funding. By 1935, however, the immediate emergency had passed, and the Roosevelt administration was able to concentrate more on long term solutions. The Works Project Administration, initially designed for emergency relief, began

to fund technicians, scientists, and engineers to assist in state university research projects under faculty supervision. President Roosevelt called upon the National Academy of Sciences to help coordinate federal research policy, which led to the creation of a National Resources Board and their support of both the physical and social sciences. In 1937, the board published *Research—A National Resource*, the first comprehensive study of the federal research establishment, which looked not only at federal bureaus and the military, but also placed federal scientific programs in the context of the entire research community, seeing scientific research as a “national resource.”

As the world situation became significantly more threatening in the late 1930s, the American scientific community welcomed a large number of refugee scientists from Europe. These refugees, many funded by private foundations, entered the American university system with the latest European scientific research methodology. In August 1939, at the urging of Leo Szilard, Albert Einstein wrote to President Roosevelt informing him of German research on nuclear fission and uranium and urged the president to begin a federal program to fund experiments in atomic energy. Scientific mobilization continued, and on June 28, 1941, President Roosevelt created by executive order the Office of Scientific Research and Development (OSRD), naming MIT president Vannevar Bush as director. OSRD was to “serve as a center for mobilization of the scientific personnel and resources of the Nation” and to develop and apply “the results of scientific research to defense purposes.” OSRD supervised a massive increase in government research funding, with total expenditures growing from approximately \$100 million in 1940, to \$1.6 billion in 1945. The most important program was the Manhattan Project and the development of the atomic bomb, but numerous other critical research activities led to the creation of additional weapons that helped defeat the Axis Powers.

World War II transformed the relationship between the federal government and the scientific community. The war convinced most individuals of the vast powers of science and technology, and the American people continued to support and willingly financed federal programs. However, military control, secrecy, and security clashed with the scientific principle of the free exchange of ideas. OSRD was a temporary wartime measure, and its continued existence ran counter to civilian scientific research efforts. President Roosevelt asked Vannevar Bush in November 1944 to address this issue. Bush presented his report, *Science—The Endless Frontier*, on July 5, 1945, calling for the creation of a centralized National Research Foundation, which would award grants, contracts, and fellowships for training and basic research in the natural and medical sciences, along with military research.

Due in part to the enormous expanse and centralization of the organization Bush proposed, the creation of the National Science Foundation (NSF) took five years of political compromises. The military, unlike in the aftermath of World War I, realized the utility of research and set up its own infrastructure, such as the Office of Naval Research, authorized in 1946, and the privately contracted Rand Corporation. Also in 1946, Congress reestablished the principle of civilian control, transferring all aspects of atomic energy research from the War Department to the new Atomic Energy Commission (AEC). The president appointed AEC commissioners with oversight provided by the congressional Joint Committee on Atomic Energy, comprised of nine senators and nine representatives. In an effort to retain the scientific infrastructure created during the war, Congress also authorized the establishment of numerous laboratories, such as Brookhaven and Argonne National Laboratories, which operated in cooperation with universities under federal contracts.

Although Bush's vision had included medical research, the separate and competing tradition for federal funding for medical research originated in the late 1880s as part of the Public Health Service. In 1902 Congress established the Hygienic Laboratory as a medical research center. It expanded dramatically during World War I, and in 1930 Congress changed its name to the National Institute of Health (NIH). During World War II, NIH concentrated on war-related medical issues through its own labs and expanded its efforts after the war by providing grants for university based researchers. Congress authorized numerous other institutes dealing with specific diseases and consolidated them into the National Institutes of Health in 1948. NIH has expanded in the last 60 years to include approximately 30 separate institutes and centers.

On May 10, 1950, five years after it was originally proposed, President Truman signed the National Science Foundation Act. The act was to encourage "a national policy for the promotion of basic research and education in the sciences . . . [and] to initiate and support basic scientific research in the mathematical, physical, medical, biological, engineering, and other sciences" through contracts and grants. NSF was also required to support research and development activities with the Department of Defense (DOD), maintain a register of scientific and technical personnel, and coordinate private and public research projects. NSF was granted only limited funding in its early years, but it provided the support structure for later growth in federal funding for basic scientific research.

By the mid 1950s, federal support for scientific and technological research had been institutionalized in a wide range of government

agencies, such as NSF, NIH, DOD, and AEC. In the decade after 1957, the total federal research budget would almost quadruple, much of it going to the newly created National Aeronautics and Space Administration (NASA). While most federal research dollars were still focused on applied research for the military during the Cold War, by 1960 the decentralized system of public and private institutions created over the previous century provided the foundation for the United States to become the world's leader in science and technology. As Thomas Jefferson stated, "Liberty . . . is the great parent of science and of virtue; and . . . a nation will be great in both always in proportion as it is free."

A History of the Committee on Science and Technology, U.S. House of Representatives 1958-2008

America, Science, and *Sputnik*

On October 4, 1957, the Soviet Union startled the political and scientific world with the launch of a 184-pound satellite called *Sputnik* into a 143 to 584 mile high orbit around the Earth. This event would reverberate for more than a decade, and was summarized by Georgia Senator Richard Russell: “*Sputnik* confronts America with a new and terrifying military danger and a disastrous blow to our prestige.” The United States faced a new level of intensive international scientific competition, and the individuals tasked with the job of tackling this dangerous situation would have to dramatically refocus the nation’s scientific and educational efforts. Shocked Americans were forced to question their nation’s longstanding belief in its own scientific and technological superiority.

America had become the world leader in the sciences in part by welcoming many top European scientists who were fleeing Nazi persecution in the 1930s and 1940s. Scientists from many European countries sought teaching and research positions in the nation’s best universities prior to the war. During World War II, scientists such as Enrico Fermi, Hans Bethe, and Edward Teller joined the Manhattan Project to build an atomic bomb. Other physicists like Walter Elsasser refused to work in weapons research. He lent his expertise to the study of meteorology and the physical properties of the atmosphere regarding radio transmissions, while Léon Brillouin employed his talents in the field of radar research. Scientists of that generation were trained in an environment based on the premise that scientific progress and professional judgments would be the model for the development of a better society. In conjunction with the change in the scientific world, the United States government had revolutionized its relationship with its citizens through the implementation of the New Deal. With the convergence of these two forces, Americans by 1945 had come to an almost unquestioning belief in the benefits of science and technology.

At the conclusion of World War II, scientists returned to academia and pursued research to gain a better understanding of nature from the subatomic level to the immensity of the universe. In a desire to maintain its advantage over any potential adversary, America made every attempt in 1945 to augment its scientific resources by bringing

the best German scientists to the United States. One of the most important programs was code named Operation Paperclip and sought to utilize such German scientists as Wernher von Braun to develop rockets. Von Braun was Germany's leading scientist in the V2 rocket program, which would prove to be the foundation for America's effort to land a man on the moon.

Although the United States and the Soviet Union had actively pursued attempts to reach the threshold of space through rocket development during the early 1950s, both nations made a concerted effort in 1957 to launch a satellite to assert its national prestige and fulfill the promise of learning more about our own planet as part of the International Geophysical Year, July 1957-1958. This worldwide scientific effort led to such discoveries as the Van Allen radiation belt around the Earth, a better understanding of the oceans, and establishment of permanent research stations in Antarctica. In the arena of space exploration, few Americans thought the Russian's centralized system capable of being the first nation to launch a satellite into Earth orbit. In the wake of *Sputnik*, the United States quickly attempted to catch up by launching its own satellite aboard the Vanguard rocket on December 6, 1957. It ended in dismal failure as the rocket achieved an altitude of only a few feet before exploding, which the public watched on television broadcasts during the following week. This and other setbacks led many Americans to question their long held belief in the nation's scientific superiority and the advisability of having the nation's space effort placed in the hands of so many diverse organizations such as the Army, Navy, and Air Force, as well as civilian agencies. The first successful American missile launch on January 31, 1958, was through a joint effort led by von Braun at the Army Ballistic Missile Agency in Huntsville, Alabama, and the Jet Propulsion Laboratory in Pasadena, California.

DOD also immediately understood the potential threat posed by a Russian missile launch with an atomic bomb on the top of a rocket instead of a satellite. As part of its response, DOD created the Advanced Research Projects Agency (ARPA) in February 1958 to counter Soviet military technology capabilities. DOD also accepted the need to establish and put into place long term research and development projects. In 1960, the nonmilitary space programs under ARPA came under the jurisdiction of a newly formed congressional committee.

The Select Committee

In light of the success of the Soviet space program and after preliminary discussions with other leaders in the U.S. House of

Representatives, Speaker Sam Rayburn on March 5, 1958, moved to create a Select Committee on Astronautics and Space Exploration with the authority to study all facets of the American space effort. To fulfill its responsibilities, the House provided the Select Committee with the jurisdiction to utilize all necessary government facilities and personnel resources. To lead the first completely new committee created since 1892, Rayburn turned to Majority Leader John McCormack of Massachusetts and Minority Leader Joseph Martin, also of Massachusetts, who readily agreed to join the new committee in order to ensure bipartisanship. McCormack and Martin proceeded to choose Members based on their expertise. On the Democratic side, McCormack selected Overton Brooks from Louisiana who served with Carl Vinson on the Armed Forces Committee. Brooks Hays of Arkansas came to the Committee from Foreign Affairs, and Leo O'Brian of New York moved over from the Commerce Committee. From the important Appropriations Committee, McCormack picked William Natcher from Kentucky, and Martin tapped Gerald Ford of Michigan. McCormack completed his majority by naming Lee Metcalf of Montana from the Education and Labor Committee and B. F. Sisk of California who served on the Interior Committee. In order to add balance to the Select Committee, Martin named Minority Whip Leslie Arends of Illinois from the Armed Forces Committee and Kenneth Keating of New York from the Judiciary Committee. Gordon McDonough of California joined the minority from the Joint Committee on Defense Production, and James Fulton of Pennsylvania came over from Foreign Affairs.

During the spring and summer of 1958, the Select Committee held hearings on the nation's space projects. To coordinate the nation's space program, the Select Committee crafted the National Aeronautics and Space Act of 1958, which President Dwight Eisenhower signed into law on July 29, 1958. This law created NASA, and the new agency would absorb its predecessor, the National Advisory Committee for Aeronautics (NACA). President Woodrow Wilson had created NACA in 1915 to research aeronautics for government and commercial enterprises. During its 43 years, NACA provided the nation with invaluable information on aeronautics, sponsored the XS-1 program in high speed and altitude flights, and in 1952 developed spacecraft designs to ensure safe reentry into Earth's atmosphere.

The Select Committee also created the National Aeronautics and Space Council (NASC) in the 1958 act, in order to coordinate NASA's programs with other government and international agencies. President Eisenhower objected to Senate Majority Leader Lyndon Johnson's initial proposal of a board because it infringed upon executive

authority, but Eisenhower agreed to the creation of NASC as a policy advisory group with the president as the chairman. NASC included the secretaries of State and Defense, NASA administrator, chairman of the AEC, and other presidential appointees. The council also had an executive secretary who was allowed to hire a staff. In addition to the creation of NASA and NASC in the 1958 act, the Select Committee put in place initial guidelines to define intellectual property rights, a major issue as government employees, private corporations, and individual scientists were collaborating and outlining the three-stage program to land an American on the moon.

To meet these objectives, the Committee passed a bill that provided NASA the financial resources and authorization to set up its own research facilities. The legislation became law on August 14, 1958, and NASA moved immediately to establish the Goddard Space Flight Center (GSFC) in Greenbelt, Maryland. GSFC has developed into one of the largest institutions studying our planet, the solar system, and the universe. It also managed the development and operations of unmanned spacecraft and related technologies. With the establishment of the National Oceanic and Atmospheric Administration (NOAA) on October 3, 1970, the Space Flight Center also took charge of monitoring flight tracking, data retrieval, and the development of new satellite technologies.

As an ancillary activity of the Select Committee, Chairman McCormack chose William Natcher and Les Arends to act as a subcommittee to investigate Unidentified Flying Objects (UFO). The topic had become a subject of great public interest and speculation since the beginning of the Atomic Age and the reputed sightings at Roswell, New Mexico, in 1947. Natcher and Arends primarily wanted to know what the Air Force knew about UFOs and their activities relating to UFO sightings. In an effort to minimize attention to a rather standard review of U.S. Air Force files, the Members referred to the meetings as the "Subcommittee on Atmospheric Phenomena." Chairman J. Edward Roush of Indiana, who would serve on the Committee from 1959-1969, was perhaps the most outspoken member of the Committee on UFOs. He wanted to investigate the issue during a seminar on July 29, 1968, which ended without any official action. Although the topic of UFOs had never been a priority or even listed as a jurisdictional issue, the question of extraterrestrial life has been the subject of subcommittee hearings during the 95th, 104th, and 107th Congresses.

While the Select Committee went about its work, the House leadership debated the structure of a permanent committee. Since both the House and Senate wanted to establish similar committees, the

concept of a joint committee was considered over the objections of Speaker Rayburn. Many thought that such a committee would have the advantages of representing the entire Congress and the benefit of input from a larger number of Members and staff. However, some House Members were concerned that any contribution they made in the legislative process would be overshadowed by the Senate. The House and the Select Committee debated the joint committee issue during May and June of 1958, and the consensus shifted from endorsing the idea to supporting the creation of a separate House committee. On July 21, the House considered and unanimously passed the resolution to establish the Committee on Science and Astronautics when the 86th Congress convened on January 3, 1959.

The House authorized the Committee to oversee NSF, which Congress had established in 1950. NSF managed a multimillion dollar operation that funded scientific and engineering projects dealing with earth sciences, economics, education, and astronomy. Currently, NSF provides grants in the social sciences, mathematics, and computer studies to colleges and universities that demonstrate the ability to make significant advancements in their field. In 2007, Congress authorized a budget in excess of \$6 billion for NSF, which provided grants to approximately 200,000 researchers.

In 1958, the House also authorized the Committee to have jurisdiction over the Department of Commerce's National Bureau of Standards (NBS). Congress created NBS in 1901, which had the responsibility to establish and maintain standards in weights and measures. NBS also had the duty to employ the highest level of engineering and physical sciences available in its laboratories and to ensure that all products comply with the bureau's standards.

The Committee on Science and Astronautics and Chairman Overton Brooks

On January 3, 1959, the 86th Congress convened and selected Brooks as chairman of the Committee on Science and Astronautics. The Committee was comprised of 25 Members, with a larger proportion of Democrats to Republicans than were seated on the Select Committee. During the 85th Congress, House Democrats maintained a narrow majority of 234 to 201, and in the Select Committee each party held six seats plus the Democratic Chairman. Democrats gained almost 50 seats in the 1958 elections, increasing their majority in the 86th Congress, 283-153. As a result, Democrats on the Committee on Science and Astronautics were allotted 16 seats while the Republicans numbered only nine.

An energetic leader, Chairman Brooks immediately took the initiative seeking to personally direct everything under the Committee's jurisdiction. Brooks had earlier served as a member of the Armed Services Committee, where he clashed with Chairman Carl Vinson over Vinson's restrictive methods that included directly controlling the activities at the subcommittee level. Brooks chafed under Vinson's refusal to delegate authority to other Members on his Committee. Ironically, Brooks ran the Committee on Science and Astronautics in much the same manner. He asserted his power in order to keep a tight rein on NASA's projects and refused to create a permanent set of subcommittees. He also expended considerable effort testing the limits of his Committee's jurisdiction by unsuccessfully pressuring other committees whose areas of jurisdiction seemed to overlap with those of his Committee.

Under Brooks' leadership, the Committee was able to pass several important pieces of legislation. The most significant concerned NASA's annual budget authorization of \$485,300,000, which became public law on June 15, 1959. The Committee established strict rules governing NASA's expenditure of funds to ensure that the agency would progress toward its goal of being the world's leader in space. With this new government focus and financial support, several NASA scientists projected that the agency could safely land a man on the moon within seven to ten years.

The Committee also encouraged additional scientific research under the jurisdiction of NSF. The Committee amended the NSF act by including a provision for the granting of scholarships and graduate fellowships in the fields of math, physics, medicine, engineering and the sciences. The National Defense Education Act of 1958, passed in the wake of *Sputnik*, became a major component of the nation's science policy and provided grants to individuals on a geographic basis and not strictly on academic achievement. The act mandated that NSF create a Science Information Service, which would support information systems, promote publications, and serve as a repository for foreign scientific information. The Committee also called upon NSF and the National Academy of Sciences to create the National Medal of Science, which the president would present to scientists and mathematicians as acknowledgment of their important work in physics, biology, mathematics, and engineering. In 1980, Congress expanded the scope of the award to include the social sciences and behavioral studies.

In 1959 and 1960, Chairman Brooks, with the encouragement and unwavering support of Majority Leader McCormack, assembled a professional staff grounded in the scientific and technical fields. The Committee and NASA also benefited by the transfer in 1960 of all

nonmilitary personnel and projects in DOD's ARPA program to NASA. As a result of these organizational changes and hard work, the Committee and Brooks were able to see the first fruits of their efforts through NASA's Mercury Program. The Mercury Program was America's space effort designed to discover whether manned spaceflight was even possible. On May 5, 1961, astronaut Alan Shepard became America's first man in space onboard *Freedom 7*, which was launched atop von Braun's Redstone rocket. Ten weeks later, astronaut Gus Grissom successfully rode the second American manned suborbital flight into space.

By mid-1961, the Mercury program was well underway, and President John Kennedy used the Shepard flight as the political platform on May 25, 1961, to announce his vision of going to the moon: "I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth." Unfortunately, the Russians presented NASA and the nation with another psychological setback when, on August 7, 1961, they orbited a man 17 times around the Earth. That unhappy turn of events was shortly followed by the untimely death of Chairman Brooks. The Chairman had suffered from ill health, and overwork led to a fatal heart attack on September 16, 1961.

New Leadership and the Race to the Moon

George Miller of California became chairman of the Committee on September 21, 1961, and served until 1973. Chairman Miller had a background in civil engineering and, like his predecessor, had served on the Armed Services Committee under Chairman Vinson. With NASA's expanding budget, which was approximately \$1 billion in 1961 and would increase another five or six times in four years, Miller wanted to ensure the best use of public funds. Miller charted a new course for the Committee by establishing permanent subcommittees, much to the delight of senior Democrats who would now be able to chair their own subcommittees. The subcommittees included: Manned Space Flight chaired by Olin Teague; Advanced Research and Technology chaired by Victor Anfuso; Space Science chaired by Joseph Karth of Minnesota; Applications and Tracking and Data Acquisition chaired by Ken Hechler; Patents and Scientific Inventions chaired by Emilio Daddario; and Women as Astronauts also chaired by Victor Anfuso.

With a lengthening list of programs and timetables, NASA experienced organizational and planning problems in the early 1960s that delayed the first orbital flight. The Committee, in its oversight

role, confronted NASA concerning its launch vehicle Nova. The second-stage rocket program was ill-defined, massive in its scope, and well beyond its projected cost. The Manned Space Flight Subcommittee chaired by “Tiger” Teague of Texas refrained from dictating policy to NASA, but by the spring of 1962, he led his subcommittee in voting to cut \$72 million from the authorization bill for construction of the Nova facilities at Cape Canaveral and in Mississippi. This move sent a clear message to the agency that they should establish more clearly defined goals.

Chairman Karth of Minnesota on the Space Science Subcommittee faced a similar problem. After successfully helping NASA deal with its relationship with private contractors, the agency drew a less than positive response from Karth’s subcommittee for its Centaur rocket program, whose purpose was to launch unmanned satellites to explore the moon. Through the subcommittee’s oversight role, the agency transferred the project out of von Braun’s department in Huntsville, Alabama, and moved it to the Lewis Research Center in Cleveland, Ohio. Von Braun’s group of scientists had been focusing their efforts in developing the liquid-fueled Saturn V rocket and did not have the ready expertise then available at the Lewis Center to deal with a hydrogen-fueled engine.

Despite several problems attributable to unprecedented growth in such a short period of time, NASA succeeded in achieving one of its primary goals in early 1962. Although delayed by several months, astronaut John Glenn piloted *Friendship 7* around the Earth three times on February 20, 1962. Glenn’s flight would be followed by three more successful Mercury missions with the final flight lasting 24 hours.

In the midst of the Mercury program, the Committee passed a piece of legislation that provided NASA with an important degree of independence from the Government Services Administration (GSA). After Chairman Teague led his subcommittee in a successful fight to stop the Air Force from taking control of some of the facilities at Cape Canaveral, the Committee helped pass a bill that removed GSA from setting standards for NASA facilities. The legislation allowed NASA to develop a set of its own specialized building guidelines and standards for its facilities instead of allowing GSA officials to oversee projects that were outside their expertise.

With the Committee’s oversight role and guidance, NASA completed the Mercury program in 1963 and began the two-man Gemini program, which was followed by the three-man Apollo project. The agency proved through the Mercury flights that man could survive in space. NASA’s Gemini program provided astronauts and ground personnel the opportunity to experiment with docking procedures

between two space vehicles, study the effects on man of long space flights, and test if man could venture outside of his spacecraft. Astronaut Edward White achieved fame on June 3, 1965, with the first space “walk” by an American.

Once NASA finished with the two-man Gemini program in November 1966, it commenced work on Apollo, which was projected to take a three-man crew on a mission to the moon. Unfortunately, on January 7, 1967, a fire in the Apollo 1 capsule killed White and the other two members of the crew, Gus Grissom and Roger Chaffee. Several days after the fire, Chairman Miller asked Chairman Teague to conduct a series of oversight hearings that would follow the presidential investigation to determine the extent of the problem while ensuring that the Apollo program not be needlessly delayed or derailed by Members who opposed manned space flight. Prior to the accident Chairman Teague had met privately with the astronauts and received their assurances that they were fully aware of the potential risks and felt confident in NASA’s safety procedures. The technical aspect of the investigation determined that a fault in the wiring had caused a spark which ignited the oxygen-rich atmosphere inside the capsule. As a result of the Teague hearings, the Committee’s NASA Authorization Act, 1968, called for the establishment of an Aerospace Safety Advisory Panel. The entire process was completed during the summer of 1968, and NASA was able to quickly put in place a new and effective set of safety procedures.

NASA’s new guidelines helped the agency achieve a great milestone on December 21, 1968, with the launch of Apollo 8 on top of von Braun’s brand new Saturn V rocket. The event captured the imagination of the country as man ventured for the first time to another celestial body. On a Christmas Eve television broadcast, astronauts Frank Borman, James Lovell, and William Anders had one of the largest audiences in history as they read from the book of *Genesis* while transmitting images of the Earth from lunar orbit. Seven months later NASA fulfilled President Kennedy’s call to land a man on the moon. On July 20, 1969, Apollo 11 astronauts Neil Armstrong and Buzz Aldrin landed in the Sea of Tranquility while Michael Collins orbited above the surface until their return.

Even in the light of so many successes, the public soon lost interest in NASA’s moon program until a near catastrophic systems failure aboard Apollo 13 on its outward voyage to the moon in April 1970. The hour by hour suspense captured the attention of the entire world until they landed safely in the Pacific Ocean near American Samoa. On December 19, 1972, the Apollo moon program ended with the return of Apollo 17. By the conclusion of the Apollo program, NASA had

launched nine missions to the moon carrying 27 astronauts, and of those individuals, only 12 had set foot on the surface of our nearest celestial neighbor.

Although the space program was perhaps the most spectacular achievement of the Committee, the Members also worked on other significant legislation. They rewrote NSF's authorizing legislation as a result of its expanding and increasingly complex mission. Also, as part of its jurisdiction, the Committee worked with NBS to improve fire and safety research and develop standard reference materials.

The Benefits of Science Come into Question

While NASA was receiving huge increases in its budget and achieving spectacular goals in space, more and more Americans began to question the benefit of science, technology, and industry versus the costs to the environment. This new attitude became more pervasive in the mid-1960s and continued well into the 1970s. During the 1940s and 1950s, the symbol of progress had been smoke spewing from factory chimneys and the production of coal and oil to fulfill the nation's energy needs. However, serious questions were being raised by individuals like Rachel Carson, in her book *Silent Spring* (1962), concerning the environmental effects of insecticides, which encompassed the very basic chemical products of science. In 1966 Harry Harrison wrote the science fiction novel *Make Room! Make Room!* set in a waste-filled, overpopulated New York City. In 1973 the book was turned into the movie *Soylent Green*, which repeatedly referred to the environmental problem of the "Green House Effect." Environmental concerns, the oil embargo crisis of 1973, and the belatedly acknowledged fact that Americans in 1966 began using more oil than they produced contributed to the feeling that science could not answer all questions.

In this atmosphere, the Committee had to confront questions concerning plans for the future and pressing environmental and energy issues. Among the general population, citizens lost interest in manned space projects after Apollo 11 and saw no direct benefits to justify the continuation of an expensive program. President Richard Nixon also failed to present any new goals or actively promote the space program after 1969. Spending millions on Apollo 14 to put Alan Shepard on the moon and having him hit a golf ball was seen by some as frivolous. During the first half of the 1970s, NASA deflected some of the critical questions by contributing to US-Soviet détente with its joint 1975 Apollo-Soyuz program. Committee Chairmen Miller and Teague knew the Apollo program would end shortly after the first moon landing, so they began looking ahead to NASA's next project.

The effort to place a man on the moon began in the late 1950s and utilized large multi-stage rockets to lift a payload into Earth orbit, which proved to be expensive and wasteful since the hardware could only be used one time. Chairman Teague was committed to manned space flight and envisioned a craft that could repeatedly achieve Earth orbit and return safely. Out of this vision, the shuttle program, officially known as the Space Transportation System, became the nation's successor launch vehicle that would take NASA astronauts into space through the year 2010. However, the introduction of the shuttle program in 1970 exposed a significant rift in the Committee. Ranking Member James Fulton of Pennsylvania joined Chairmen Miller and Teague in supporting the shuttle program, while subcommittee Chairmen Karth and Hechler opposed the project. At the center of the debate was the question of whether manned or unmanned missions were more cost effective and scientifically productive. The president's science advisor, a position President Franklin D. Roosevelt had created in 1939 and Kennedy formalized in 1961 as the Office of Science and Technology, supported increasing NASA's budget to pay for the shuttle and the construction of a space station. In light of the escalating cost of the Vietnam War and budget shortfalls, Karth, Hechler, and their supporters could not justify an increase in resources and took the extraordinary action on the floor of the House of openly contesting the nature and breadth of Chairman Teague's hearings in an attempt to defeat the shuttle program. However, Chairman Miller and Ranking Member Fulton succeeded in winning the debate by defeating Karth's amendment to strip NASA's budget of \$240 million for the shuttle by a tie vote in the House and passed NASA's 1970 authorization bill.

In addition to supervising the space program, the Committee also had to confront the ever increasing complexity of other scientific projects under its jurisdiction, which included a wide area of research and development activities at various national laboratories, NBS, NASC, and NSF. To meet the need to improve interagency communications and better coordinate activities, the Committee proposed the establishment of the Office of Technical Assessment, which Congress created in 1972. This congressional office studied scientific and technical issues at a depth not possible by regular congressional staff and provided reports, studies, and findings to the public and congressional committees. Former Member and subcommittee Chairman Emilio Daddario served as the director until 1977. In 1995 the Republican majority in the House and Senate disbanded the board in a move to reduce waste and duplication.

Because of the expansion of world trade, the Committee studied the feasibility of the United States' adopting the metric system. Chairman George Brown was a strong proponent of the conversion, and on December 23, 1975, the Metric Conversion Act of 1975 became public law. Although the change was voluntary, the legislation created the U.S. Metric Board, which was charged with overseeing the transition to the new system. President Ronald Reagan eliminated the Board by presidential order in 1982 due to public resistance and strong opposition, especially from machinists. Even though the general public rejected the metric system, the American scientific community universally utilized the system in engineering, space projects, and joint international programs.

The Emergence of Energy and Environmental Policies

As a direct result of U.S. support of Israel during the Yom Kippur War in the fall of 1973, the Middle Eastern dominated Organization of Petroleum Exporting Countries (OPEC) imposed an embargo on oil shipments to America, causing a severe gas shortage. This crisis presented a major threat to the economic stability of the nation and new problems for the Committee. Although the Committee faced major technical and managerial hurdles in dealing with NASA and the space program in the 1960s, the interests of all involved had focused on the primary objective of landing a man on the moon. As the energy crisis evolved and Congress attempted to develop a coherent policy, the Committee faced a plethora of technical issues and an incompatible array of special interests pushing their divergent points of view on ways to address the energy issues.

Olin Teague became chairman (1973-1979) of the Committee during the 93rd Congress, and, under his leadership, the Committee created a new subcommittee to deal with the energy crisis. Mike McCormack of Washington State became chairman of the Energy Subcommittee, which initiated several important pieces of legislation. Its first bill was the Solar Heating and Cooling Demonstration Act of 1974. The act required the federal government to "initiate, support, and carry out such research, development, demonstrations, and other related activities in solar heating and cooling technologies..." The subcommittee focused the legislation to address means to reduce utility demands, replace fossil fuels with commercially viable solar technology, and protect the environment. The act had a \$50 million budget and called upon NBS, in consultation with the director of NSF, to monitor and report to Congress the results of tests conducted in commercial, educational, and residential applications.

Expanding on this, Chairman McCormack and the subcommittee put forward two additional acts: the Geothermal Energy Research, Development, and Demonstration Act, which was shortly followed by the Solar Energy Research, Development, and Demonstration Act. Included in both pieces of legislation was a provision that no action should adversely affect the environment. These acts became law on September 3, 1974, and came under the authority of the newly created Energy Research Development Administration (ERDA), which would officially begin work in 1975. To oversee the research and development of pilot projects, both laws called for the creation of a committee, which would be directly under the jurisdiction of the Committee on Science and Technology, comprised of several ranking secretaries in the executive branch, an assistant director of NSF, and an associate director of NASA.

Although the Committee was not directly involved in the passage of the Federal Nonnuclear Energy Research and Development Act of 1974, it would become a primary participant in amending the act in later years. One of the longstanding issues that the Committee would confront concerned the first section of the law, which stated that the nation needed to find “environmentally acceptable forms of energy.”

Chairman Teague reorganized the Committee during the 94th Congress and created several new subcommittees. The new subcommittee structure included: Energy Research, Development, and Demonstration (Fossil Fuels) chaired by Hechler; Environment and the Atmosphere chaired by Brown; Aviation and Transportation Research and Development chaired by Dale Milford; Domestic and International Scientific Planning and Analysis chaired by Ray Thornton; and Energy Research, Development and Demonstration chaired by McCormack. Only the Space Science and Applications Subcommittee retained its original name, but its composition changed under its new chairman, Don Fuqua, with the Democrats increasing their majority over the four Republicans from five Members to eleven.

Under this new structure, Teague placed a great deal of reliance on two subcommittees in the field of energy legislation. Chairmen Hechler and McCormack worked to pass the ERDA authorization during 1976, and Chairman Brown’s subcommittee added the environmental component to the final bill. As part of the authorization, ERDA assumed responsibility for and management of energy research and development activities along with some military nuclear programs.

Early in the 95th Congress in 1977, the House expanded the Committee’s jurisdiction over energy research and development programs to include nuclear power.

One of the most divisive issues that came before the Committee during the late 1970s was the Clinch River Breeder Reactor Program. In the post-war period, scientists and government officials desired to develop a type of reactor which would create more fissionable material than a reactor would consume. Scientists suggested that the building of this new type of fast-neutron nuclear reactor could prove to be one answer to the nation's energy needs. During Teague and Fuqua's chairmanships, a majority of Members on the Committee supported the breeder reactor research program. In late May and early June 1977, Chairman Teague led a group of Members and staff to France to study its national programs and to Austria to meet with the International Atomic Energy Agency. Upon their return, Chairman Walter Flowers of Alabama of the Fossil and Nuclear Energy Research, Development, and Demonstration Subcommittee began holding budget hearings on the Clinch River Breeder Reactor project. President Jimmy Carter in mid-May 1977 declared his intent to cancel the program because of nuclear proliferation concerns.

Chairman Teague, who initially questioned the program, had become a supporter along with Chairman McCormack, Marilyn Lloyd Bouquard (Rep. Marilyn Lloyd) of Tennessee and a majority of the full Committee Democrats. All but one of the committee Republicans also supported Clinch River. Congresswoman Bouquard had the additional impetus to support the project since it would be built in her home district. Chairman McCormack felt so strongly about the reactor program that he even met directly with President Carter, without the knowledge or approval of Chairman Teague. McCormack's effort proved fruitless and only succeeded in creating a major rift between himself and Chairman Teague. Although Teague agreed with McCormack's position on the reactor, Teague's approach to running the Committee precluded other Members from opening a dialogue with the president without the Chairman's knowledge.

The opponents on the Committee included f Richard Ottinger of New York and other antinuclear Democrats who cringed at the prospect of expending more funds for a project they considered flawed and dangerous. Experts such as Edward Teller, father of the H-Bomb, and Admiral Hyman Rickover, father of the nuclear submarine and Jimmy Carter's mentor, generally agreed with their premise that the project was of a poor technical design and presented nuclear proliferation dangers. Chairman Teague repeatedly tried to put forth compromises that would satisfy both groups and not trigger a presidential veto of the ERDA authorization bill of 1977. Following some bitter debates, Teague finally won a temporary victory. The bill's passage proved to be a sharp rebuff of the president's policy, but support remained weak

in later Congresses to continue funding the Clinch River Breeder Reactor.

Besides the major energy authorization bills, subcommittee Chairman McCormack and Ranking Republican Barry Goldwater, Jr., from California worked together on the Electric and Hybrid Vehicle Research, Development, and Demonstration Act of 1976. Battery-powered automobiles had been a dream for many years, and this legislation brought government researchers into the program. The bill made note of the advantages of improving the nation's economic and national security needs, and it also addressed the benefit of cutting down noise levels and reducing pollutants. Although the technology was not advanced enough at the time for commercial applications, research continued.

The Committee also had jurisdiction over fire safety, and Chairman John Davis of Georgia, who headed the Science, Research, and Development Subcommittee, worked on legislation that would reduce the number of deaths by fire in America. As a result of the loss of approximately 250 firefighters and 12,000 citizens through fires in the single year of 1971, Davis put forth the Federal Fire Prevention and Control Act of 1974. This legislation created the United States Fire Administration (USFA) and the National Fire Academy (NFA) in Emmitsburg, Maryland. Since the act's inception, the death toll due to fires has declined by approximately 50 percent.

Chairman Brown proved to be a strong leader of the Environment and the Atmosphere Subcommittee and succeeded in passing several important pieces of environmental legislation. As part of NASA's 1975 authorization bill, the subcommittee included a section entitled Upper Atmospheric Research, which directed the agency to investigate and monitor the chemical and physical composition of the troposphere. The subcommittee also utilized its jurisdictional authority over the National Weather Service (NWS) to work for the passage of the National Weather Modification Policy Act of 1976, which established a program to protect or warn the public concerning weather related events such as hurricanes and tornados.

During the 1970s the Committee worked with NBS to begin to focus on environmental questions relating to offices, factories, and homes. NBS established a number of commercial guidelines dealing with pollution and the conservation of energy. In keeping with other ecological issues, the Committee helped enact the Environmental Research, Development, and Demonstration Authorization Act of 1976. The act provided the authority to the Environmental Protection Agency (EPA) to conduct research into the effectiveness of a wide range of

legislation dealing with clean air and water, waste disposal, noise pollution, and pest control.

The Committee's long held desire to have a cabinet level energy department came to fruition soon after the inauguration of President Carter. During an April 18, 1977, television address to the nation concerning energy, Carter stated: "Our decision about energy will test the character of the American people and the ability of the President and the Congress to govern. This difficult effort will be the 'moral equivalent of war' -- except that we will be uniting our efforts to build and not destroy." Subcommittees under the leadership of Flowers and McCormack worked to pass the Department of Energy Act of 1977, which united ERDA and the Federal Energy Administration to form the main components of the new department. Carter signed the legislation and declared October 1, 1977, as the effective date when the Department of Energy (DOE) would begin operations. The act provided research and development funds, facilities for expanded geothermal study, and electric and hybrid car research. Another important aspect of the act required the new department to investigate the impact of automobiles on energy use and the environment.

The Environment and the Atmosphere Subcommittee under Chairman Brown continued to champion environmental issues and worked for the passage of several important pieces of legislation. One bill of particular interest to Brown was the Earthquake Hazards Reduction Act of 1977. As a resident of California and a witness to the damage done during the 1971 Sylmar Quake in California, along with understanding the effects of other quakes such as the 1964 Good Friday Quake in Alaska and the August 1959 Hebgen Lake Quake in Montana, Chairman Brown crafted legislation to involve NBS, NSF, NASA, NOAA, DOD, and the Department of Housing and Urban Development (HUD) to help deal with the aftermath of any future events. Due to the threat quakes posed to the safety of individuals, the economy, and national security interests, the Committee established the National Earthquake Hazards Reduction Program (NEHRP). NEHRP staff worked under the auspices of NSF, NBS, the Federal Emergency Management Administration (FEMA) and the United States Geological Survey (USGS) and was charged with the responsibility of developing better construction standards, monitoring land use, improving preparedness, and investigating techniques to predict quakes.

By the early 1970s, large scale dumping of waste off the coasts of New York and New England had become a major concern to the citizens in Wydler's New York district in Nassau County on Long Island. This and other environmental concerns occupied a major part of the Environment and the Atmosphere Subcommittee's time during

the 95th Congress. With input from Wydler, the full Committee's ranking member, the subcommittee drafted legislation that created the National Ocean Pollution Research and Development and Monitoring Planning Act of 1978. The act established a comprehensive five-year program that called upon NOAA to monitor the environmental impact of dumping waste along the coastline.

In addition to the question of dumping waste into the ocean, Committee members began to focus on the long-term environmental effects of industrialization and gas emissions. The Committee began work in 1976 to examine this emerging issue, which led them to write the National Climate Program Act in 1978. The act was more expansive than the National Ocean Pollution Research and Development and Monitoring Planning Act of 1978's mandate to monitor the situation and produce a report. The Climate Act created a national climate research program under the authority of the Department of the Interior and administered through the Commerce Department designed to give scientists around the world a better understanding and ability to react to natural and manmade climate changes and their implications.

The Committee's view of understanding and protecting the environment extended far beyond the United States to include Antarctica, one of the best places to study long-term environmental issues. Major expeditions during the International Geophysical Year, July 1957–1958, established the first permanent bases since Richard Byrd wintered on the ice shelf in the early 1930s. In the 1970s, Chairman Brown led his subcommittee to write legislation to protect the flora and fauna and prohibit the introduction of any new life forms into Antarctica's ecosystem. Because of the continent's fragile environment, where it would take hundreds or thousands of years for any disruptions in the ecology to correct itself, the Committee also included in the legislation a prohibition against the release of pollutants on the ice or in the surrounding waters. The Antarctica Conservation Act of 1978 gave NSF, NOAA, and other government agencies the power to enforce laws and treaties concerning the continent. To oversee their work, Committee members, such as Tom Harkin of Iowa, Committee staff, and leaders of NSF were part of a long list of visitors who have traveled to and studied Antarctica.

Science Policy under Chairman Don Fuqua

In 1978 Chairman Teague retired, passing the reins to Don Fuqua of Florida at the beginning of the 96th Congress. Soon after Fuqua assumed the chairmanship (1979-1987), the nation was confronted with a revolutionary movement in Iran which precipitated a new energy

crisis. With the return of long lines at the gas pumps, energy concerns reemerged as a top priority in Congress. In addition to the gas crisis, on March 28, 1979, a nuclear accident occurred at Three Mile Island, near the cities of Harrisburg and Hershey, Pennsylvania, which raised questions of safety and the long term viability of nuclear power plants in the U.S. Congressional oversight of the near disaster involved the full Committee and two subcommittees. Members and staff had to wade through a litany of technical and design issues complicated by the fact that every nuclear power plant in the nation was of a different design. In this atmosphere, Members who distrusted fission power renewed their opposition to funding nuclear energy but failed to offer practical alternatives. The majority of the Members, however, worked to help calm the public mood and succeeded in keeping other nuclear facilities from being closed. However, the direct result of the accident was a general aversion to nuclear power and the suspension of building any new facilities.

Chairman Fuqua also had to confront the ongoing controversy over the Clinch River Breeder Reactor. He supported the program and weathered contentious Committee debates and lobbying efforts by major power companies. The main opposition to the Clinch River project predated the Three Mile Island event and centered on the issues of proliferation, the technical feasibility of the plan, and general opposition to nuclear projects. As more and more Members voiced their opposition, the full Committee held its last hearing on the subject, "Closeout Costs-Clinch River Breeder Reactor Project," during the first session of the 97th Congress. On October 26, 1983, Congress terminated all funding over the objections of President Reagan.

The Committee held a range of hearings concerning energy issues that eventually made their way into the Energy Security Act, which became law on June 30, 1980. One of the most significant aspects of the legislation concerned the creation of the Synthetic Fuels Corporation. The legislation tasked this public-private corporation to develop methods of deriving energy from hydrogen found in water and from coal, lignite, peat, shale, tar sands, biomass, alcohol, geothermal, solar, wind, and other renewable sources. The legislation also put in place programs designed to conserve energy by giving homeowners and businesses incentives to improve and update heating and cooling systems and install insulation. Shortly after the passage of this bill, oil prices declined precipitously during President Carter's last year in office. In this environment and with the new administration of Ronald Reagan exerting a great amount of influence on the Hill, the executive branch succeeded in abolishing the corporation in 1985.

In conjunction with the work on the Energy Security Act, Chairman Richard Ottinger of the Energy Development and Applications Subcommittee took the lead in developing wind and ocean thermal energy legislation. The subcommittee membership included two future chairmen of the full Committee, Robert Roe of New Jersey and Robert Walker of Pennsylvania, and future Senators Bill Nelson of Florida and Albert Gore, Jr., of Tennessee, who would become vice president in 1993. The energy bills exemplified the widespread and thematic approach the Committee pursued in an attempt to deal with the crisis. Work on the production of electricity from ocean thermal conversion had begun and was soon accelerated to test the program on a larger scale. The wind energy proposal called upon NASA, EPA, and NOAA administrators to supply support and expertise to research the project. NASA's input was deemed crucial because of the work done at the Lewis Research Center on rotors and stators, which comprised the most important part of wind driven devices.

With the Three Mile Island accident still fresh in people's minds, the Committee fought a divisive battle to help pass the Nuclear Waste Policy Act of 1982. The topic of nuclear waste had become a very touchy subject in Congress after it disbanded the Joint Committee on Atomic Energy on August 5, 1977. Congress' dealing with nuclear issues became more fragmented as different committees assumed various aspects of the Joint Committee's jurisdictional duties. Although the Interior and Energy Committees dealt with the bulk of waste policy legislation, the Committee on Science and Technology played an important role in crafting the final bill. Chairwoman Bouquard of Tennessee and Ranking Member Manuel Luján, Jr., of New Mexico, led the Energy Research and Production Subcommittee in a hearing entitled "Nuclear Waste Management Comprehensive Legislation." The result of the hearings was to add their recommendations to H.R. 5016 and DOE's authorization to proceed with analysis and procurement of suitable sites to store nuclear waste. The debate pitted those who saw science as a means to solve the nation's energy problems against those who feared precipitating an environmental crisis. After years of debate concerning the site for a repository, in 1987 DOE selected Yucca Mountain, Nevada. Despite the dangers of currently holding nuclear waste in aboveground containers of dubious quality, the storage issue is still unresolved due to an array of legal challenges emanating at the state, national, and Native American tribal level.

In an effort to more effectively confront another environmental concern during the 97th Congress, the Natural Resources, Agriculture Research and Environment Subcommittee, led by Chairman James

Scheuer of New York, held hearings on hazardous waste disposal as part of its oversight of EPA's 1982 budget. Eight years after the creation of EPA in 1970, the agency became deeply involved in the cleanup of the environmental disaster at Love Canal in Niagara Falls, New York. Subcommittee Chairman Scheuer, a resident of New York City, helped craft a set of amendments to the 1980 Comprehensive Environmental Response Compensation and Liability Act, known as the Superfund. The fund enabled EPA to conduct its own research to determine the condition of different sites and the most effective clean-up procedures for removing deadly contaminants found in the ground.

During Fuqua's chairmanship in the 96th-99th Congresses, the Committee worked to pass several new research and educational pieces of legislation. One of the more important changes enabled NSF to expand its Antarctic research and include the Arctic. The Committee also helped fund DOE research and development projects as well as continuing to support earthquake and fire prevention programs. In the field of education, Fuqua and the Committee, in conjunction with the Education Committee, held hearings and worked to pass the Education for Economic Security Act, which became law on August 11, 1984. The act directed NSF to help develop science and technology curricula for primary and secondary education, which has become known as the Science, Technology, Engineering, and Mathematics Program.

The Committee continued its long support of NASA, focusing in the 1980s on the space shuttle program, the agency's major manned space project, and the shuttle's main mission of ferrying men and material for the construction of the International Space Station. The Committee held almost a dozen hearings between 1981 and 1986 where NASA personnel presented shuttle flight information and the astronauts personally appeared as witnesses. Unfortunately, after five years of success, tragedy struck the shuttle program on January 28, 1986, when the space shuttle *Challenger* suffered a rocket failure. The accident resulted in the loss of all aboard and made news around the world. Especially tragic was the death of Christa McAuliffe, who the House had named as the "First Teacher in Space." The full Committee held two investigations into the disaster and helped NASA identify the technical and administrative problems and oversee the necessary corrective procedures. The Committee also conducted oversight hearings into NASA's much delayed space telescope project, which ultimately led to the successful use of the shuttle to carry the Hubble Space Telescope into Earth orbit in 1990.

During the 97th Congress, the Committee helped pass the Small Business Innovation Development Act of 1982, which set aside research funding for small technology businesses. The program

originally had a budget of \$100 million per annum, which has expanded in recent years to approximately \$2 billion. The most far-reaching piece of legislation the Committee enacted during the 99th Congress was the passage of the NSF Authorization for 1987, which became law on August 21, 1986. Included in the legislation was a codicil that called for the networking of research computers. The concept of interconnecting computers began in the early 1960s, and DARPA created the Advanced Research Projects Agency Network (ARPAnet) in 1968-1969. This networking of government research laboratories and universities was the foundation for the Internet.

Chairman Gore headed the Investigations and Oversight Subcommittee during the 97th and 98th Congresses and contributed to the Committee's work on NSF authorization legislation. Gore also conducted several important subcommittee hearings that focused on the development and potential uses of computers. Hearings topics included: "Small, High Technology Firms, Inventors and Innovation;" "Emergency Management Information and Technology;" "Local Incentives for High Technology Firms and Innovation;" and "Computers and Education." As the subcommittee's chairman for four years, Gore conducted a total of 64 hearings that ranged from sodium in food and high blood pressure, forecasting energy demands, synthetic fuels development, genetic screening, carbon dioxide in the climate, diesel technology, robotics, to human genetic screening, and carbon dioxide and the greenhouse effect.

To integrate scientific and technological advancements into the activities of people and businesses, Chairman Fuqua oversaw the passage of a wide range of technology transfer legislation. Subcommittee Chairman Brown held hearings that led to the passage of the Stevenson-Wydler Technology Innovation Act of 1980, which established the legal and administrative framework for cooperation among government labs, universities, and private industry. The legislation created offices in the federal government to promote technology transfer and established laws governing patents and commercial use of government inventions. The provisions in the act were expanded in the 98th and 99th Congresses to redefine the treatment of intellectual property and create cooperative research and development agreements between government and private labs.

In the 99th Congress, Fuqua led the Committee to pass the NBS Authorization for 1986 that included an important new area of responsibility for the bureau. Ranking Member Larry Winn of Kansas had become very interested in the issue of structural integrity of buildings after an elevated walkway in his hometown of Kansas City, Missouri, collapsed. The Hyatt Regency hotel disaster of July 17, 1981,

resulted in the deaths of 114 people and the injury of more than 200. Winn worked with Chairman Gore's Investigations and Oversight Subcommittee to review the reasons for the failure and improve construction standards. With the passage of the authorization, NBS assumed the authority to reexamine its testing procedures and develop new building standards. During the 107th Congress, these standards became a critical subject of the Committee's investigation into the collapse of the World Trade Center buildings in New York City on September 11, 2001.

During his last term as chairman, Fuqua initiated 24 hearings to review government science policy. This was the Committee's first comprehensive study of where the nation stood in science since the Committee's inception 28 years earlier. Chairman Fuqua envisioned the project as an examination of what advancements had been achieved since the 1945 Vannevar Bush report *Science—The Endless Frontier* and areas where renewed efforts should be pursued.

The hearings allowed the Members to refocus on the broad agenda of science and technical concerns facing the nation. The ultimate impact of the hearings, however, was limited. Bush's position in the government as the head of NACA and the Office of Scientific Research and Development (OSRD) during the 1940s afforded him the unique position to influence policy in both the executive branch and Congress. Unlike the Bush report, which President Roosevelt initiated, Chairman Fuqua's review was generated within the Committee, and thus its impact did not extend substantially beyond the jurisdiction of the Committee.

The Committee on Science, Space and Technology, 1987-1995

At the beginning of the new Congress, the House named Robert Roe chairman of the Committee (1987-1991). One of his first decisions was to rename it the Committee on Science, Space, and Technology. Chairman Roe felt it only proper that the name of the Committee reflect the fact that a large percentage of its work focused on NASA and the space program.

Chairman Roe and the Committee promoted the advancement of scientific research by passing the Malcolm Baldrige National Quality Improvement Act of 1987. Named after the late Secretary of Commerce Malcolm Baldrige, a personal friend of President Reagan, the act was an amendment to the Stevenson-Wydler Act and created an award the president would personally present to "American business and other organizations," which practiced "effective quality control in the provision of their goods and services." The Committee placed the authority to oversee the operation of the program under NBS, which

Congress and the executive branch renamed in 1988 as the National Institute of Standards and Technology (NIST).

In another effort to promote scientific advances in the private sector and to secure information systems, the Committee developed two important pieces of legislation. On January 8, 1988, the Computer Security Act of 1987 became law. The Committee supported this bill that called upon NIST, instead of the National Security Agency, to develop a set of standards for the security of civilian computers. Chairman Doug Walgren of Pennsylvania and Ranking Member Luján led their subcommittee, Science, Research, and Technology, in the passage of the Steel and Aluminum Energy Conservation and Technology Competitiveness Act, which became law on November 17, 1988. The Committee pushed for the passage of the act in order to reduce energy use in the nation's metals industries. The act called upon DOE to find energy efficient techniques of producing steel and aluminum because private companies in the Members' home districts were unable to do the research or stay in business unless they could reduce fuel costs.

The final landmark piece of legislation the Committee helped develop in the 100th Congress was in the area of providing electricity more cost-effectively through the development of high-temperature superconducting materials. Chairwoman Lloyd of the Energy Research and Development Subcommittee, Chairman Dave McCurdy of the Transportation, Aviation, and Materials Subcommittee, and Chairman Doug Walgren of the Science, Research, and Technology Subcommittee held hearings on the subject of superconductivity. The full Committee also conducted hearings later and helped draft the National Superconductivity and Competitiveness Act. The objective of the legislation, which became law on November 19, 1988, was to engage government laboratories in the search for a superconducting material that could handle high amounts of electricity without significant cooling with almost no loss of energy over long distances. Although no immediate breakthroughs were achieved, subsequent research has led to limited commercial applications.

Beginning with Chairman Roe's second term, the Committee focused much of its work on environmental, safety, energy, and education issues. In conjunction with other House committees, the Committee crafted the Oil Pollution Act of 1990. The legislation required government agencies to research and develop methods that would solve the problems of oil-related accidents in light of the *Exxon Valdez* oil spill in Alaska's Prince William Sound on March 24, 1989. It also sought different methods to intercede and limit damage as well as implement effective cleanup methods when dealing with multiple

types of petroleum products. The Committee continued its work to update the Clean Air Act and supported research dealing with the Water Resources Development Act of 1990. In a renewed emphasis on climate change, Chairman James Scheuer of New York held hearings in the Natural Resources, Agriculture, Research, and Environment Subcommittee concerning global food production and population. These hearings resulted in the passage of two pieces of legislation, the Global Change Research Act of 1990 and Food, Agriculture, Conservation and Trade Act of 1990, which addressed the consequences of climate change on agriculture.

While various subcommittees conducted hearings concerning earthquake preparedness, high-definition television standards, Antarctic environmental issues, and increased highway speed limits, the full Committee worked to pass two important fire safety laws. After years of reports detailing fires started by cigarette smokers, Congress passed the Fire Safe Cigarette Act, which gave NIST the authority not only to review the characteristics of lit cigarettes, but also the habits of smokers themselves. The act led to changes in the composition of cigarettes and how they burn when left unattended, which resulted in cutting the death rate in cigarette-related accidents by half. The second piece of legislation was the Hotel-Motel Fire Safety Act of 1990. As a result of the deaths of 97 people and the injury of 140 others in the DuPont Plaza fire in Puerto Rico, which was set by striking workers in 1986 on New Year's Eve, the Committee crafted the act to protect federal employees from having to stay in any facility that lacked a sprinkler system. The legislation further stated in two codicils that the law was "applicable to all places of public accommodation."

Late in the 101st Congress, Chairman Roe led the full Committee into another series of hearings concerning NASA. They wanted to know why scientists only discovered that the Hubble Space Telescope had a flaw in its lens after launch and what they intended to do to correct the problem. The telescope program had been in the planning stages for years, and scientists hoped it would be a major advance by providing a view of the universe free from the distortions of Earth's atmosphere. Although NASA assured the Committee that the problem could be fixed, it left a feeling of unease with many.

On a more positive subject, Chairman Bill Nelson of the Space Science and Applications Subcommittee conducted hearings into President George H. W. Bush's proposed Mars and Lunar programs, and a review of NASA's Voyager Missions. The origins of the Voyager project began when NASA started to focus on planetary exploration in the 1960s. NASA launched the two *Voyager* crafts in 1977, and the spacecrafts continued to transmit data long after passing

the orbit of Pluto. In addition to requesting that NASA update the status of the program, Nelson's subcommittee also conducted hearings concerning the increased interest in commercial space activities and NASA's compliance with the November 15, 1988, Commercial Space Launch Act passed during the preceding Congress.

With the beginning of the 102nd Congress in 1991, Chairman Roe left the Committee and became head of the Committee on Public Works and Transportation. George Brown became the new chairman of the Committee on Science, Space, and Technology. Under Brown's leadership during the next two Congresses, the Committee conducted a range of hearings but increasingly focused on government technology transfer to the private sector. He also succeeded in passing three important bills that strengthened the preeminence of the nation in the field of technology. By the 1990s computers had become an important tool for many government operations, and as a result, the Committee helped pass the High-Performance Computing Act of 1991, which became public law on December 9, 1991. The legislation, first introduced by former Committee member Senator Gore and known as the "Gore Bill," called for the government's most advanced computer systems to be organized into an interagency configuration administered by the Office of Science and Technology Policy in the White House. To further integrate and enhance government computer activities, the American Technology Preeminence Act of 1992 made the National Technical Information Service the repository of all federal technological journals and mandated that they be made available to other government agencies and the public.

Included in the same act, the Committee incorporated language that allowed national research laboratories to transfer older computer hardware, operating programs, and software to college and university science departments. As part of the Committee's long-standing interest in the training of new generations of scientists and technicians, Chairman Brown oversaw the passage of the Scientific and Advanced Technology Act of 1992, which put in place for the first time a program designed to improve the curricula and standards of engineering and science instructors in community colleges nationwide in an effort to increase the number of students pursuing degrees in these all important fields.

Because of its interest in transportation issues, the Committee continued its efforts to promote efficient means of moving people and materials. As part of the Energy Policy Act of 1992, Chairman Brown pressed hard to guide the nation's energy policy to include conservation and develop renewable energy sources for motor vehicles. The legislation built upon previous bills to promote the development of

usable electrical storage systems that would lead to commercially viable electric automobiles.

A second and equally important bill was the Intermodal Surface Transportation Efficiency Act of 1991. Committee Chairman Brown and former Chairman Roe led the joint effort to pass the act. In the 102nd Congress, Roe became Chairman of the Committee on Public Works and Transportation with Chairman Norman Mineta heading its Surface Transportation Subcommittee. Mineta also had the distinction of serving on the Committee on Science, Space, and Technology's subcommittee on Technology and Competitiveness. Chairman Brown and Chairmen Roe and Mineta crafted a transportation bill for fiscal years 1992-1997 with a \$155 billion budget. The purpose of the bill was: "to develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner."

Although the title of the act indicated the primacy of container freight, the legislation was the first major modification in transportation planning and policy since the creation of the Interstate Highway System in the 1950s. The act encompassed a full array of transportation issues and incorporated many different elements to improve the national and interstate highway systems, mitigate urban congestion, and replace outdated bridges. It also advanced metropolitan planning, the building of toll roads, promoted highway safety and addressed the problems of alcohol and drugs, promoted air transportation and intermodal freight transport, and supported research projects.

With the beginning of the 103rd Congress in January 1993, Chairman Brown made some minor changes in the Committee's procedures. Because of one-party control at both ends of Pennsylvania Avenue, a large portion of congressional legislation passed through the Committee as part of the appropriations process instead of separate bills. Chairman Brown and the Committee held a total of 174 hearings during 1993 and 1994. However, only six separate pieces of legislation were passed instead of the usual 20 or 30 bills passed in each of the two previous Congresses. With the end of the Cold War, a "peace dividend" allowed for the reallocation of resources from defense to civilian projects. The most important Committee work was on the Defense Authorization Acts for 1994 and 1995, which redirected resources to technology transfer projects and enlarged the Manufacturing Extension Partnership (MEP). As part of NIST, MEP provided small manufacturers access to services to promote growth,

improve productivity, and expand capacity in public and private sector enterprises.

Even with an alteration in the legislative process, the Committee continued its work to safeguard the environment and oversee science projects. Chairman Rick Boucher of the Science Subcommittee held hearings on NSF and its work in Antarctica. The condition of the ozone layer over the continent had first come to the attention of researchers in the late 1950s, and scientists had detected a major decline in the ozone beginning in the early 1970s. The subcommittee focused its attention on the government's compliance with the Clean Air Act and the use of chlorofluorocarbons. Other subcommittees continued work on electric vehicles, developing green technology, and monitoring global climate issues. In the space program, the Hubble Space Telescope project was the subject of hearings as were possible threats from asteroids and the oversight of NASA's launch capabilities.

One of the more difficult questions the full Committee faced in the 103rd Congress dealt with the funding of two important projects. Since the 1950s, one of the most common themes or objectives in the space program was the construction of a space station. NASA had designed the shuttle to be the primary delivery system of men and material to the station. Competing with NASA for funds was the Super Collider program. A project involving pure scientific research, scientists wanted to use the collider to accelerate particles of matter almost to the speed of light to study the dynamics and structure of matter, space, and time. DOE commenced preliminary work on the \$4.4 billion collider project in the mid-1980s and construction began in Texas in 1988. Chairman Roe co-sponsored the House Superconducting Super Collider Project Authorization Act of 1990, but the Senate had begun to question the program and let it die in committee. By 1993 the cost had ballooned to three times the original estimate.

In light of efforts to reduce the federal budget deficit during the first term of President Bill Clinton, the space station and the collider became targets for cancellation. Both programs had similar budgets, and it quickly became a question of which program would be eliminated. The full Committee held hearings on the collider project, but even with five Members on the Committee from Texas, Congress voted to cancel it in 1993. Part of the reason for the collider's cancellation and growing disagreements in the Committee was political. On the national and state level, the collider became a victim of presidential and gubernatorial infighting between Democratic and Republican administrations. In the Committee an increasingly adversarial relationship developed between Chairman Brown and his Democratic supporters and Ranking Member Robert Walker.

Republicans Take Control of the House

In 1994, for the first time in 40 years, Republicans won a majority in the House with a gain of 54 seats, 230-204-1. As part of its *Contract with America*, Republicans introduced new procedures in the House, imposing a three-term limit for committee chairs, slashing committee staff by one-third, and limiting most committees to only four subcommittees. With the opening of the 104th Congress in January 1995, Robert Walker of Pennsylvania became the one-term chairman of the newly renamed Committee on Science.

Although the House expanded the Committee's overall jurisdiction in several minor areas, its primary responsibilities remained unchanged. Chairman Walker began his term by reorganizing his Committee into four subcommittees: Basic Research chaired by Steven Schiff of New Mexico; Energy and Environment chaired by Dana Rohrabacher of California; Space and Aeronautics chaired by F. James Sensenbrenner, Jr., of Wisconsin; and Technology chaired by Constance Morella of Maryland. With the objective of increasing efficiency and reducing the number of hearings, the Chairman shifted the Committee's emphasis from the subcommittee level to the full Committee. In the preceding two Congresses, the Committee had averaged 174 hearings, with approximately 140 of those held at the subcommittee level. Under Chairman Walker, followed by Chairmen Sensenbrenner and Sherwood Boehlert of New York, the Republican majority conducted an average of only 85 hearings per Congress, and of those more than 40 percent were full Committee hearings.

The first full Committee hearing was entitled "Is Today's Science Policy Preparing Us for the Future?" and set forth the basic approach Walker wanted the Committee to follow for the remainder of the 104th Congress. Under Chairman Walker's direction, the Committee worked to pass eight bills, many of which were reauthorizations of previous acts. The National Technology Transfer and Advancement Act of 1995 further defined intellectual rights and permitted all participants to obtain licenses for their specific contribution in research and development contracts under the Cooperative Research and Development Agreement. The act updated the Stevenson-Wydler Technology Innovation Act of 1980, which allowed government and non-government partners to share resources, technical information, and intellectual property. The Committee also was involved with the passage of two laws that reworded or updated the government's use of the metric system in procurement and building standards. In the field of energy research, the Committee continued its work on the advancement of hydrogen fuel cells.

Before the end of the second session of the 104th Congress, Chairman Walker decided to retire from Congress. In his last year on the Committee, NASA presented him with the Distinguished Service Medal for his leadership in advancing the nation's space effort and its commercialization. This was the first time the agency had extended the honor to a sitting Member of the House. In January 1997, Chairman Walker left Congress to become a lobbyist.

During the 105th and 106th Congresses, Chairman Sensenbrenner led the Committee, and one of the important bills passed during his first term in 1998 concerned women's issues. Chairwoman Constance Morella of Maryland, who chaired the Technology Subcommittee, championed the legislation that established a Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology. The commission was vested with the authority to study and submit a report to the president, Congress, and the states on the participation of women and minorities in the sciences and ways to increase their numbers. Although the legislation ordered the dissolution of the commission after issuing its report, the topic has been a continuing point of interest at NSF.

Under Sensenbrenner's leadership, the Committee continued its emphasis on space and energy issues. The Space and Aeronautics Subcommittee held extensive hearings on commercialization and one on NASA's future entitled, "What Kind of Space Program Does America Need for the 21st Century?" The Committee worked with NASA and other lawmakers to pass the Commercial Space Act of 1998, which called upon the agency to expand its efforts to privatize space technology. In the field of energy, the Committee passed a methane law during the 106th Congress concerning the exploration of gas deposits on the ocean floor, but the Energy and Environment Subcommittee held the most important hearings, which involved the effects of fossil fuels on the environment. With the increasing interest in environmental issues and the Committee's jurisdiction in the field, Speaker Newt Gingrich appointed Chairman Sensenbrenner, who opposed international agreements concerning environmental issues, to head the House delegation to the global climate conferences held in Kyoto, Japan, in 1997 and in Buenos Aires, Argentina, in 1998.

In 1999, national priorities temporarily shifted away from energy problems and the space program and toward a looming technical crisis. Information technology had increased dramatically in the preceding decade as computers became part of everyday life, but early computers had limited memory, forcing programmers to make shortcuts. It was unclear how the beginning of the new millennium would affect the world's computer systems. Known as the Y2K problem, many

computer experts worried that the date change from the 20th to the 21st century would cause massive computer disruptions and possible shut downs. The Technology Subcommittee held several hearings during the 105th Congress on how the Y2K problem would affect the Postal Service, satellites and global positioning systems, national security, the Federal Aviation Administration, international travel, state governments, and nuclear power. The full Committee also examined how the Y2K issue would impact space and air travel. While no major computer related problems occurred with the beginning of the new millennium, the hearings helped increase national preparedness through its review of computer operations throughout the federal government.

During Sensenbrenner's last term as chairman of the Committee (1999-2000), he presided over several hearings to investigate the quality of and ways to improve science and mathematics education. He placed particular emphasis on the primary and secondary levels. His first hearing, "Why and How You Should Learn Math and Science," was followed by three hearings that focused on math and science teachers and kindergarten through 12th grade curricula.

Chairman Sensenbrenner also oversaw two hearings dealing with minority issues. As a follow-up to Chairwoman Morella's Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology passed into law on October 14, 1998, the Committee conducted a hearing to review the commission's report and ways to increase the representation of minority students, which had been a major theme at a number of the national laboratories including Argonne National Laboratory, outside of Chicago, Illinois. One of the last hearings conducted before Chairman Sensenbrenner and the full Committee during the 106th Congress concerned EPA. As the result of civil rights questions, the Committee held the hearing, "Intolerance at EPA-Harming People, Harming Science," to ensure the agency complied with federal laws and continued its scientific mission in an effective manner.

After September 11, 2001: New Priorities for the Committee on Science

With the beginning of the 107th Congress in 2001, Sherwood Boehlert of New York became Chairman and served as the Committee's leader through the end of the 109th Congress in 2007. Chairman Boehlert desired to focus the Committee's work on energy, education, and environment; but several important national events changed his agenda. During the first session, the Committee held hearings on science and mathematics education, acid rain, combating the introduction of non-native species to the environment, and climate

change. However, the terrorist attacks on September 11, 2001, required an immediate and comprehensive readjustment of priorities.

Reacting to the collapse of the World Trade Center and operating under its jurisdictional oversight authority of NIST, the Committee worked for the passage of the National Construction Safety Team Act that became law on October 1, 2002. The act directed NIST, through its mandate of “assuring maximum application of the physical and engineering sciences to the development of technology in industry and commerce,” to ascertain the causes of structural failure, review evacuation measures, provide guidance on increasing safety standards, and conduct research into improving building material safety. In addition to the act, the full Committee held two hearings on the collapse of the World Trade Center buildings to determine what was learned from the disaster and the strengths and weaknesses of the response at the federal and state levels.

In the post-9/11 environment, the Committee conducted a number of hearings examining the nation’s vulnerabilities to a terrorist attack. Before the end of 2001, Capitol Hill became the target of an anthrax attack that resulted in hearings once the House office buildings were reopened. In this environment the Committee exercised its jurisdiction to investigate the safety of water systems and the security of America’s computer systems. The protection of the nation’s computers was addressed in the Cyber Security Research and Development Act and called upon the auspices of NSF and NIST to oversee its implementation.

One of the most important laws that passed through the Committee was the Homeland Security Act of 2002, which was enacted on November 25, 2002. In early June, Chairman Vernon Ehlers of Michigan conducted hearings in his Environment, Technology, and Standards Subcommittee on the homeland security issue. Chairman Boehlert held a hearing two weeks later to examine the possibilities of creating a new federal bureau. The Committee’s main responsibility set forth in the 2,147-page act called for it to oversee research and development processes and establish a set of standards for the new agency. After passage of the act, the last meeting of the full Committee during the 107th Congress examined, “Conducting Research during the War on Terrorism: Balancing Openness and Security,” which proved to be a timely and ongoing question.

As part of the Committee’s jurisdiction of overseeing “standards,” the Members became involved in the balloting problems surrounding the 2000 presidential election. In the aftermath of the Florida election and its many recounts, the Committee conducted hearings beginning on May 22, 2001, with “Improving Voting Technologies: The Role of

Standards.” As a result of the hearings, on October 31, 2001, the Committee approved and sent to the House, the Voting Technology Standards Act of 2001, which failed to pass. However, elements of the Committee’s proposed act were incorporated into the Help America Vote Act of 2002, which became law on October 29, 2002. The Committee’s main responsibility under the act concerned oversight of NIST’s work to ensure the establishment of a set of election standards and eliminate the infamous punch card ballots. Even though the act was designed to solve future election issues, more questions were raised with each change, which led the Committee during the 109th Congress to hold a hearing entitled, “Voting Machines: Will the New Standards and Guidelines Help Prevent Future Problems?”

During Boehlert’s last two terms as chairman, the Committee worked on improving education and the expansion of the Malcolm Baldrige Quality Award to include non-profit organizations. The promise of hydrogen fuel in the nation’s future continued to be a topic of Committee hearings as did the desire to secure America’s energy independence. Chairman Boehlert also took particular interest in NSF’s work in the development of nanotechnology and conducted a series of four full and subcommittee hearings on its scientific potential as well as expressing concerns about its environmental and safety implications.

NASA and the crisis caused by the space shuttle *Columbia*’s disintegration upon reentry on February 1, 2003, forced the Committee to face a new set of problems. In its oversight role, the full Committee conducted several hearings into the tragedy and NASA’s response to the accident. Subsequent hearings during the following three years sought answers concerning NASA’s future and the projected termination of the shuttle program by the end of 2010, its financial management, manned space flight in general, and President George W. Bush’s call for a return to the moon and an expedition to Mars. In addition, the Committee worked to develop the Commercial Space Launch Amendment Act of 2004, which placed all business-related space ventures under the control of the Department of Transportation and required the Department to ensure the implementation of safe programs for humans traveling into space.

As a result of the tragedy surrounding the tsunami that occurred in the Indian Ocean on December 26, 2004, Chairman Boehlert called for a hearing as soon as the 109th Congress convened. The Committee had a direct and jurisdictional interest in the disaster through their oversight of the National Weather Service (NWS) and NOAA. The primary question concerned America’s preparedness in light of its vulnerable coastlines. The Committee helped craft legislation that called upon

NOAA to establish and operate a tsunami detection system, including in the Indian Ocean, which would provide timely warnings to populations along ocean coastlines.

New Directions in the 110th Congress

In November 2006, the Democratic Party captured the majority of seats in the House. Party leaders designated Bart Gordon of Tennessee the Chairman of the newly renamed Committee on Science and Technology. Chairman Gordon, who had succeeded to Gore's seat in 1984, promptly set to work on many of the same issues that faced his predecessors. One of the first pieces of legislation that worked its way through the Committee, the Energy Independence and Security Act of 2007, was a collection of various provisions relating to conservation, renewable marine and geothermal energy research and development, solar energy, and biofuels. The Committee also played an important role in the passage of the Methamphetamine Remediation Research Act of 2007, an area of interest in the previous Congress, which tasked EPA to develop new detection technologies and oversee the cleanup of contaminated sites.

Chairman Gordon's most significant piece of legislation during the first session of the 110th Congress was the passage of the America COMPETES Act (The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act). Chairman Gordon stated for the Committee the overriding importance of the legislation: "This bill will strengthen long-term basic research in the physical sciences, mathematical sciences, and engineering. It directs funding toward graduate students and early career researchers in these areas. It also establishes a Presidential Innovation Award to stimulate scientific and engineering advances in the national interest. Investing in science education and research along these lines is necessary if the U.S. is to maintain its position as a global leader in technology and innovation." The various components of the act are based on the recommendations of the Council on Competitiveness, a nonpartisan, nongovernmental group of CEOs, university and labor leaders, and the National Academy of Sciences report, *Rising above the Gathering Storm*. This report, compiled under the leadership of Norman Augustine, former Chairman and CEO of Lockheed Martin Corporation, examined the question of the nation's ability to compete in the 21st century. The act encompassed work on promoting innovations and funding a full range of research projects for NASA, NOAA, and NIST.

One of the main facets of the act focused on the continuing energy problem and called upon DOE to create an organization modeled after

DOD's DARPA program, which had originally been designated as ARPA in 1958. The COMPETES Act mandated that the new office in DOE, ARPA-E, reduce the nation's dependence on foreign energy in the next decade while constructively dealing with the issue of global climate change. ARPA-E was structured to enhance results through its semi-independent relationship with DOE and its ability to provide funds to laboratories making progress while being able to eliminate funding for laboratories that failed to show meaningful results.

The act also increased the financial support of NSF during the next several years and established a number of new long and short term educational programs at the state and local levels. The legislation was designed to ensure America's scientific and technological preeminence and encompassed a full spectrum of science and technology issues facing the nation's research labs and its entire educational system.

Toward the Endless Frontier

Looking toward the future, the Committee still must confront many of the central issues that were present in the wake of the launch of *Sputnik* in 1957. It was obvious to America's leaders 50 years ago that maintaining our scientific and technical leadership in the world required a robust educational system. The Committee has supported that effort through the years and the America COMPETES Act is only the latest example of that dedication. As a result of the Committee's work during the space race with the Soviets, its Members and the world have witnessed the successful landing of men on the moon. In the future, the Committee will work with NASA's long term objectives of returning to the moon and eventually going to Mars. The Committee began in the 1970s to confront environmental issues. In 1968, Apollo 8 astronauts gave us a unique and unforgettable view of our environmentally fragile planet set against the backdrop of the limitless universe. That image brought into focus the need to protect our environment, one of the most important challenges facing America and the world.

Jurisdictional History of the Committee on Science and Technology

Introduction:

On October 4, 1957, the Soviet Union launched *Sputnik*, which created a feeling of vulnerability and a sense that America was no longer the world's leader in science. In response, the U.S. Houses of Representatives created a select, bipartisan committee. This select committee was established on March 5, 1958, and the House created a new permanent committee on aeronautics and space exploration on July 21, 1958. In order to perform its duties, the House invested the Committee on Science and Aeronautics with certain areas of jurisdiction. Like all institutions, the Committee has evolved during the past 50 years and so has its jurisdiction and oversight responsibilities.

Committee on Science and Aeronautics

85th (1957-1959) — 92nd Congress (1971-1973)

(From the inception of the Select Committee on March 5, 1958, and through the end of the 92nd Congress, the Committee had jurisdiction in the following areas.)

- a) Aeronautical research and development, including resources, personnel, equipment, and facilities.
- b) Bureau of Standards, standardization of weights and measures and the metric system.
- c) National Aeronautics and Space Administration.
- d) National Aeronautics and Space Council.
- e) National Science Foundation.
- f) Outer space, including exploration and control thereof.
- g) Science Scholarship.
- h) Science research and development.

Committee on Science and Technology

93rd Congress (1973-1975)

(The House renamed the committee on January 3, 1975, and gave it jurisdiction over several new areas. In addition, the committee was provided general and specific oversight duties listed in clause 2 (b) and 3 (f) of Rule X.) See citation after the 110th Congress.

- 1) Aeronautical research and development including resources, personnel, equipment, and facilities.
- 2) Bureau of Standards, standardization of weights and measures and the metric system.
- 3) National Aeronautics and Space Administration.
- 4) National Aeronautics and Space Council.
- 5) National Science Foundation.
- 6) Outer space, including exploration and control thereof.

- 7) Science Scholarships.
- 8) Scientific research and development.
- New Jurisdictions***
- 9) Civil aviation research and development.
- 10) Environmental research and development.
- 11) All energy research and development except nuclear research and development.
- 12) National Weather Service.

94th (1975-1977) — 95th Congress (1977-1979)

(On January 4, 1977, the House gave the committee jurisdiction over nuclear R&D, which had belonged to the House Joint Committee on Atomic Energy [H. Res. 5.]. Jurisdictional area 11 was revised to reflect the committee's new duties.)

- 11) All energy research and development.

All other jurisdictional areas remained the same as the 93rd.

96th Congress (1979-1981)

(The Committee was granted additional concurrent jurisdiction on September 24, 1978, in conjunction with the Armed Services and Interior and Insular Affairs committees concerning the development of oil shale technologies.)

All other jurisdictional areas remained the same as the 95th.

97th (1981-1983) — 99th Congress (1985-1987)

(The House extended the jurisdiction of the committee on March 25, 1980, to become effective on January 3, 1981, to include new duties in the field of energy. To reflect the new duties, jurisdictional areas 8 and 11 were reworded.)

- 8) Scientific research, development, and demonstration, and projects therefor, and all federally owned or operated nonmilitary energy laboratories.
- 11) All energy research, development, and demonstration, and projects therefor, and all federally owned or operated nonmilitary energy laboratories.

All other jurisdictional areas remained the same as the 95th.

Committee on Science, Space and Technology

100th Congress (1987-1989)

(January 6, 1987, the House renamed the committee under H.R. 5.)

All jurisdictional areas remained the same as in the 99th.

101st (1989-1991) — 102nd Congress (1991-1993)

(Jurisdictional area 8 was reworded and the phrase, "and all federally owned or operated nonmilitary energy laboratories." was deleted. Also, the committee acquired concurrent jurisdiction, shared by four other committees and EPA, regarding federal research into the contamination of ground water.)

All other jurisdictional areas remained the same as the 99th.

103rd Congress (1993-1995)

(Due to a change in the name of agencies in the executive branch, jurisdictional areas 2 and 4 were reworded.)

- 2) National Institute of Standards and Technology, standardization of weights and measures and the metric system.
- 4) National Space Council.

All other jurisdictional areas remained the same as the 99th.

Committee on Science

104th (1995-1997) — 105th Congress (1997-1999)

(On January 4, 1995, the House renamed the committee and expanded its jurisdiction to include areas that once belonged to the Merchant Marine and Fisheries, and Energy and Commerce committees. All of the jurisdictional areas were reorganized along with the expanded duties as set forth in areas 5 and 6.)

- 1) All energy research, development, and demonstration, and projects therefor, and all federally owned or operated nonmilitary energy laboratories.
- 2) Astronautical research and development, including resources, personnel, equipment, and facilities.
- 3) Civil aviation research and development.
- 4) Environmental research and development.
- 5) Marine research.
- 6) Measures relating to the commercial application of energy technology.
- 7) National Institute of Standards and Technology, standardization of weights and measures and the metric system.
- 8) National Aeronautics and Space Administration.
- 9) National Space Council.
- 10) National Science Foundation.
- 11) National Weather Service.
- 12) Outer space, including exploration and control thereof.
- 13) Science Scholarships.
- 14) Scientific research, development, and demonstration, and projects therefor.

106th (1999-2001) — 109th Congress (2005-2007)

(Due to clerical and stylistic adjustments passed by the House on January 9, 1999, jurisdictional area 6 was reworded during the 106th Congress.)

- 6) Commercial application of energy technology.
- All other jurisdictional areas remained the same as the 105th.

Committee on Science and Technology

110th Congress (2007-2009)

(January 4, 2007, the House renamed the committee under H.R. 6.)

All jurisdictional areas remained the same as in the 105th .

Special Oversight Functions of the Committee on Science and Technology, 93rd-110th Congresses as cited in the Rules of the House of Representatives for the 110th Congress:

- “3.(k) The Committee on Science and Technology shall review and study on a continuing basis, laws, programs, and Government activities relating to non-military research and development.

Landmark Legislation of the Committee on Science and Technology

85th Congress

National Aeronautics and Space Act of 1958 PL: 85-568
(Congress has amended the act several times, but this legislation created NASA out of the original National Advisory Committee on Aeronautics. The legislation laid out the manned space programs of the 1960s and 1970s and the possibility of international efforts. It also included guidelines for the protection of intellectual property.)

NASA Authorization: Construction Authority PL: 85-657
(This legislation provided the funds for NASA to begin constructing facilities at the Goddard and Beltsville Space Centers in Maryland.)

86th Congress

NASA Authorization Act, 1960 PL: 86-45
(This act set in place the committee's oversight authority of NASA's manned space operations and ensured the timely completion of each program.)

National Science Foundation Act of 1950, Amendment
PL: 86-232
(President Truman signed the original act of 1950 into act (81-507) to create the Foundation and the National Science Board to oversee the federal funding and promotion of research in the sciences. This new act permitted NSF to present scholarships and expands the Board's work to include international projects.)

87th Congress

NASA Act of 1958, Amendment: National Aeronautics and Space Council PL: 87-26
(This legislation amended the original act and named the vice president as the chairman of the Council instead of having the president listed as its head.)

NASA Authorization Act, 1963 PL: 87-584
(The government removed GSA from management of NASA's facilities.)

88th Congress

Standards of Electrical and Photometric Measurements,
Amendment to Act of July 21, 1950 PL: 88-165
(An act of minor significance dealing with a word change in light intensity, but it is important because it was the Committee's first use of its jurisdictional authority.)

89th Congress

NASA Authorization Act, 1967 PL: 89-528

(For the first time, the Committee included information concerning the dispensing of research grants by geographical regions, which would be of major importance to each Member and the citizens in their districts.)

90th Congress

NASA Authorization Act, 1968 PL: 90-67

(In response to the fire that killed the three astronauts of Apollo 1, this legislation created an Aerospace Safety Advisory Panel.)

Fire Research and Safety Act of 1968 PL: 90-259

(The Committee established its jurisdiction concerning fire safety and research programs under the National Bureau of Standards (1901-1988), and subsequently under the National Institute of Standards and Technology (1988-Present). The act also set up a research grant program and the National Commission on Fire Prevention and Control.)

Standard Reference Data Act PL: 90-396

(The act sets standards for all products involved in commerce through the National Bureau of Standards/National Institute of Standards and Technology.)

Metric Study PL: 90-472

(With most of the world adopting the metric system, the Committee employed its jurisdictional powers and began a feasibility study with the purpose of converting America from the English to the metric system of measurement.)

91st Congress

NASA Authorization Act, 1970 PL: 91-119

(This legislation addresses a conflict of interest issue dealing with personnel who leave the agency and are hired by nonfederal contractors.)

92nd Congress

National Bureau of Standards Act of March 3, 1901,

Amendment PL: 92-317

(Congress amended the original organic act in order to let NBS (NIST) personnel take part in educational programs and deal with all levels of state, local, and international governmental offices.)

Technology Assessment Act of 1972 PL: 92-484

(The legislative branch created the Office of Technology Assessment with the objective of providing Congress with expert advice on science and technological issues. With the change in majority leadership in 1995, the Republicans disbanded it.)

93rd Congress

Solar Heating and Cooling Demonstration

Act of 1974 PL: 93-409

(As the first piece of legislation to come out of the Energy subcommittee, this act predates the Committee's jurisdiction by several months, but did include issues under the responsibility of NASA, NSF, and NBS. It is the first in a wide series of energy related acts that will come before the Committee during the next several years.)

Geothermal Energy Research, Development, and Demonstration Act PL: 93-410

(Congressman Mike McCormack worked on this in tandem with the Committee's work on the Solar Energy act. It was another example of the importance of energy research following the oil crisis of 1973.)

Solar Energy Research, Dev., and Demo. Act PL: 93-473

(The act created one office to oversee all solar energy projects, and it predates the Energy Research Development Administration, which Congress approved in October 1974.)

Federal Fire Prevention and Control Act of 1974 PL: 93-498

(This legislation created the National Fire Prevention and Control Administration under the Department of Commerce and the Fire Academy in Emmitsburg, MD. This area of authority is currently under FEMA.)

Fed. Nonnuclear Energy R. and D. Act of 1974 PL: 93-577

(This is considered to be one of the most important pieces of legislation passed by the 93rd Congress because it created an energy program similar to the Atomic Energy Act of 1946 and 1954. It would come under the auspices of the Committee in the 94th Congress through its new jurisdictional authority.)

94th Congress

NASA Authorization Act, 1976 PL: 94-39

(With the end of the Apollo program, this act expanded NASA's area of operations to include atmospheric studies and the earth's environment.)

Metric Conversion Act of 1975 PL: 94-168

(Although a national mandatory metric conversion was politically impossible, this legislation attempted a voluntary conversion and created the U.S. Metric Board, which President Reagan later abolished.)

Energy Research and Development Administration

Authorization, 1976 PL: 94-187

(Under jurisdictional area 11 in House Rules X, the Committee took the lead in this energy act during the crisis

of the 1970s, which included the work of three subcommittees: Energy Research, Development, and Demonstration (Fossil Fuels), Energy Research, Development and Demonstration, and Environment and the Atmosphere.)

National Science and Technology Policy, Organization, and Priorities Act of 1976 PL: 94-282

(Established under President Kennedy and abolished by President Nixon, Congress reestablished the office of Science Advisor along with the Office of Science and Technology Policy. In conjunction with the White House office, the legislation also established the Federal Coordinating Council on Science, Engineering, and Technology, which was charged with the responsibility to manage the science programs throughout the government. Congress has direct control of this office in the White House.)

Electric and Hybrid Vehicle Research, and Development, and Demonstration Act of 1976 PL: 94-413

(Congress and the Committee promoted research into alternative forms of power and propulsion, which failed to meet its expected goals due to limited electrical and battery technology.)

Environmental Research, Development, and Demonstration Authorization Act of 1976 PL: 94-475

(The legislation began in the Environment and the Atmosphere subcommittee and was the initial annual authority to develop research programs under the Noise Control; Federal Insecticide, Fungicide, and Rodenticide; Public Health Service's environmental activities of the Clean Air Act; Water Pollution Control; and Solid Waste Disposal Acts.)

Nat. Weather Modification Policy Act of 1976 PL: 94-490

(This act was the Committee's first use of its jurisdictional authority granted in area 12 under House Rule X during the 93rd Congress to enact policy relating to the National Weather Service.)

Resource Conservation and Rec. Act of 1976 PL: 94-580

(Congress debated this new environmental legislation, part of which was referred to the Committee under jurisdictional rule 11 passed during the 93rd Congress. The subcommittee on Environment and the Atmosphere reviewed the research aspects of the act while the Committee on Interstate and Foreign Commerce considered the remaining parts of the act.)

95th Congress

National Energy Act of 1978 PL: 95-617-621

(In response to the energy crisis of 1973, the Committee supported other House Committees to pass this congressional legislation.)

Energy Research and Development Administration

Authorization, 1977 PL: 95-39

(Realizing the energy problems of declining supplies, the Committee acted to promote conservation and introduce new forms of energy at the earliest opportunity.)

Earthquake Hazards Reduction Act of 1977 PL: 95-124

(Put forth by Chairman George E. Brown, Jr., the legislation established an ongoing interagency research program, NEHRP.)

Environmental Research, Development, and Demonstration

Authorization Act of 1978 PL: 95-155

(The legislation was the committee's first authorization of EPA.)

Department of Energy Act of 1978 PL: 95-238

(This was the Committee's first legislation dealing with its new jurisdictional mandate concerning nuclear power and a wide range of energy sciences.)

National Ocean Pollution Research and Development and

Monitoring Planning Act of 1978 PL: 95-273

(As environmental issues developed in the 1970s into a major concern for a large number of people, especially the dumping of waste along the northeast coast, Congressman John Wydler from New York pushed for the passage of this legislation.)

National Climate Program Act PL: 95-367

(Preliminary work on this legislation began in 1976 and was completed in 1978. The Committee initiated an overall review of weather and environmental issues and the impact and implications of human activities.)

Solar Photovoltaic Energy Research, Development, and

Demonstration Act of 1978 PL: 95-590

(Chairman McCormack supported this reauthorization of the program for the conversion of solar energy into electricity.)

Antarctic Conservation Act of 1978 PL: 95-541

(Because of NSF's and NOAA's longstanding interest in the Arctic and Antarctic dating back to the International Geophysical Year during 1957, the Committee has taken a great interest in their programs and many of the members and staff have participated in a number of on-sight inspections.)

96th Congress

Energy Security Act PL: 96-294

(After several years of work dealing with energy issues concerning the conversion of coal into synthetic fuels, the Committee in conjunction with the Committees on Agriculture, Banking, and Commerce passed one of the most important acts during this Congress.)

Additional Energy Issues during the 96th Congress

Ocean Thermal Energy Conservation Research, Development, and Demonstration Act PL: 96-310

Wind Energy Systems Act of 1980 PL: 96-345

Magnetic Fusion Energy Act of 1980 PL: 96-386

Methane Transportation Research, Development, and Demonstration Act of 1980 PL: 96-512

Nuclear Safety Research, Development and Demonstration Act of 1980 PL: 96-567

(The Committee dealt with a wide range of energy legislation as a result of the 1979 gas crisis.)

Stevenson-Wydler Technology Innovation

Act of 1980 PL: 96-480

(Congressman George Brown worked to pass this legislation, which President Carter promoted to develop a network of cooperative technical programs. It also established a policy of technical transfer within many government agencies.)

97th Congress

Omnibus Budget Reconciliation Act of 1981 PL: 97-35

(Due to the fact that President Reagan threatened not to sign any new spending legislation, this act became a means to get around a veto threat and obtain a three year budget for DOE instead of the usual annual budget, and it also provided a means to continue funding the fire and earthquake programs.)

Small Business Innovation Dev. Act of 1982 PL: 97-219

(As part of the movement by the government to get private business more involved with research and development programs, this legislation created a set-aside of more than \$100 million per year, which has presently grown to almost \$2 billion. This program is the largest of its type and is co-administered with the Committee on Small Business.)

Nuclear Waste Policy Act of 1982 PL: 97-425

(After the abolishment of the Joint Committee on Atomic Energy, the Committee became deeply involved in the problem of waste disposal. Working in concert with the committees on Energy and the Interior, a compromise was put in place to deal with establishing a repository, the type and place of which has still not been finalized.)

98th Congress

Arctic Research and Policy Act of 1984 PL: 98-373

(Six years after the passage of the Antarctica Conservation Act (see Public Law 95-541) the Committee extended NSF's role to include the Arctic.)

Education for Economic Security Act PL: 98-377

(Referred to the Committee by the Education Committee, this legislation was an effort to integrate NSF activities with teacher and curriculum programs at both the elementary and secondary levels.)

National Cooperative Research Act 1984 PL: 98-462

(As part of an antitrust action and one of the most important acts to improve competition, the Committee, operating in conjunction with the Judiciary Committee, developed legislation that removed much of the legal obstacles that deterred joint lab projects. This act marked the decline of the large research facilities and an expanded number of smaller companies.)

Commercial Space Launch Act PL: 98-575

(In the Committee's first actions in this arena, it enacted legislation to create a partnership between commercial enterprises interested in the exploration and utilization of space and the government, which would transfer technology and make facilities available for launches that complied with international laws.)

Trademark Clarification Act of 1984 PL: 98-620

(This legislation was an adjustment to the Lanham Trademark Act (15 U.S.C. 1064(c) of 1946, the Bayh-Dole Amendment to the Patent and Trademark Laws (PL 96-517), and the Stevenson-Wydler Technology Innovation Act (PL 96-512). These acts radically altered the relationships between private and federal labs and the definition of intellectual property.)

99th Congress

National Bureau of Standards Authorization Act for

Fiscal Year 1986 PL: 99-73

(In an effort to boost the NBS, the Committee raised its budget and established its investigative role in the safety of bridges and other structures.)

Omnibus Budget Reconciliation Act of 1985:

Title VI PL: 99-272

(To ensure the full budgeting of NOAA on an annual basis, the Committee sought to include its budget in this type of omnibus act.)

National Science Foundation Authorization Act for

Fiscal Year 1987 PL: 99-383

(This was the important pieces of legislation that would promote the networking of powerful computers, which would be the precursor of the Internet.)

Superfund Amend. and Reauth. Act of 1986 PL: 99-499

(Under EPA's administration, Congress passed The Comprehensive Environmental Response, Compensation, and Liability Act in 1980 in response to the Love Canal emergency. The new act allowed the government to establish research programs under EPA's control as part of the CERCLA.)

Federal Technology Transfer Act of 1986 PL: 99-502

(This act was a means to require the Reagan Administration to revive the Stevenson-Wydler Act (PL96-480) and establish Cooperative Research and Development Agreements. The objective of the legislation was to create an exchange of technology and grants from the federal government to private industry.)

100th Congress

Malcolm Baldrige National Quality Improvement Act of 1987
PL: 100-107

(Chairman Fuqua wished to establish a National Quality Award under NBS/NIST that would be equal to any other national award and be prestigious enough for the president to present. With the death of Commerce Secretary Baldrige, Congress named the award after him.)

Omnibus Budget Reconciliation Act of 1987 PL: 100-203

(This legislation was used as a means to enact several important amendments dealing with nuclear waste policies and storage, and the act put forward the possible utilization of the Yucca Mountain site in Nevada as a permanent storage facility, which has never been resolved.)

Computer Security Act of 1987 PL: 100-235

(Due to computer security concerns, NSA sought the adoption of Security Decision Directive 145, which would encompass the security issues of all military and civilian systems. The legislation placed all civilian computer standards under the control of NBS/NIST.)

Omnibus Trade and Competitive. Act of 1988 PL: 100-418

(Chairman Roe oversaw the passage of this legislation that renamed the NBS, the National Institute of Standards and Technology. Included in the act was a new organic act, the establishment of the Manufacturing Extension Partnership, Advanced Technology Programs, and National Advisory Committee on Semiconductor R&D. Also, despite opposition at the presidential level, the legislation stated that the preferred system of measurement was the metric system.)

National Institute of Standards and Technology Authorization Act PL: 100-519

(This first authorization for NIST established a new structure for the Institute's technical programs and included the legal foundation for its organic act.)

Steel and Aluminum Energy Conservation and Technology Competitiveness Act of 1988 PL: 100-680

(With the national steel industry unable to perform its own research, Congressman Walgren from Pennsylvania worked for the passage of this legislation, which called for the Department of Energy to help find ways to reduce energy costs. Congressman Luján of New Mexico was able to include the aluminum industry in the act.)

National Superconductivity and Competitiveness Act of 1988 PL: 100-697

(With the high cost and relative inefficient means of transmitting electrical energy, the Committee passed this legislation in an effort to pursue research into finding high efficiency transmission materials with the added feature of the materials remaining at a low temperature. After two decades of research, the goal has never been achieved, but some advances have had limited commercial applications.)

101st Congress

National Defense Authorization Act for Fiscal Years 1990-1991 PL: 101-189

(Under CRADA program, members of the Committee were made conferees on this defense authorization legislation dealing with the relationship between government owned labs operated by contractors.)

Fire Safe Cigarette Act PL: 101-352

(With the Committee's jurisdiction over NBS/NIST and a strong interest in fire issues, this legislation charged the NIST to do studies on the ignition of cigarettes and the behavior of smokers.)

Oil Pollution Act of 1990 PL: 101-380

(Working with several other committees, the Committee developed legislation that called upon the Secretary of Commerce to establish the Prince William Sound Oil Spill Recovery Institute, which would perform environmental R&D on the characteristics and types of oil spills and the use of various methods to contain and diminish their impact on the flora and fauna.)

The Clean Air Act Amendment of 1990 PL: 101-549

(This legislation was an update, which takes place approximately every ten years, and is primarily focused on R&D programs.)

The Spark M. Matsunaga Hydrogen Research, Development and Demonstration Act of 1990 PL: 101-566

(Due to the continuing interest in developing new non-petroleum forms of energy, Chairmen Brown and Walker worked on this legislation to promote research into methods of storage and use. This program has seen a large infusion of funds under President George H. Bush.)

The Excellence in Mathematics, Science, and Engineering Education Act of 1990 PL: 101-589

(In keeping with the Committee's longstanding interest in science based educational activities, this legislation establishes additional programs that are currently under the America COMPETES Act of 2007.)

Fastener Quality Act PL: 101-592

(This legislation came to the Committee because of its jurisdiction dealing with weights and measures, NBS/NIST, and the oversight of labs that test the quality of fasteners.)

The Global Change Research Act of 1990 PL: 101-606

(The Committee has a long record of interest in global climate issues and also serves as a coordinator between the Office of Science and Technology Policy and the Federal Coordinating Committee on Science, Engineering, and Technology through its jurisdictional authority.)

Food, Agriculture, Conservation and Trade Act of 1990 PL: 101-624

(Although the subject of the jurisdiction of other committees, this legislation became part of the Committee's work because it dealt with the impact of climate change on food production.)

The Hotel-Motel Fire Safety Act PL: 101-591

(After a fire at the DuPont Plaza Hotel in San Juan, which caused the death of approximately 100 people in part because of the lack of sprinklers, the Committee through its jurisdiction on fire issues helped pass this legislation. This act restricted any government employee from using or staying in a facility without a sprinkler system.)

102nd Congress

High-Performance Computing Act of 1991 PL: 102-194

(This legislation called for the organized development of high output computers. The Office of Science and Technology Policy in the White House would oversee the interagency program.)

Intermodal Surface Transportation Efficiency Act of 1991 PL: 102-240

(The Committee's jurisdictional authority was extended for the first time to include surface transportation. Chairman Norm Mineta led the subcommittee hearings. Mineta

would become Secretary of Commerce in 2000-2001 and then Secretary of Transportation 2001-2006.)

American Technology Preeminence Act of 1991 PL: 102-245

(This legislation established NIST as the repository of all federal publications dealing with technologies. It also allowed federal research labs to give their old or surplus computer hardware to educational institutions.)

Scientific and Advanced Tech. Act of 1992 PL: 102-476

(This act was an effort by the Committee to improve technical and scientific programs at two-year colleges.)

Energy Policy Act of 1992 PL: 102-486

(With the cooperation of several other committees, this important energy legislation of the 1990s included the Committee's contribution of allowing non-government organizations to enrich uranium by the establishment of the U.S. Enrichment Corporation. Electric car technology was put forward again in the hope that private enterprise could be persuaded to develop new methods of storing electricity.)

Small Business Research and Development Enhancement Act of 1992 PL: 102-564

(This act was a reorganization of SBIR to increase its commercial programs and established the Small Business Technology Transfer, which would interact with national and academic labs.)

103rd Congress

National Defense Authorization Acts, 1993 and 1994

PL: 103-160 and 103-337

(With the executive and legislative branches under Democratic control, much of the work on these acts went through appropriations acts in a rather informal manner. The major impact of this legislation was the transfer of a large amount of defense funds to civilian areas of the budget.)

104th Congress

National Technology Transfer and Advancement Act of 1995

PL: 104-113

(Ever since the establishment of the Committee, intellectual property rights had been an important issue. Through this legislation, these rights were spelled out in more detail under CRADA program.)

Hydrogen Futures Act of 1996 PL: 104-271

(This act was another attempt to create more interest and research in the uses of fuel cells and hydrogen.)

Saving in Construction Act of 1996 PL: 104-289

(While the government had failed to convert completely to the metric system, this act was designed to help reduce the cost of federal projects.)

105th Congress

Commission on the Advancement of Women in Science, Engineering, and Technology Development Act PL: 105-255
(Chairwoman Morella of the Technology subcommittee put forth this act in response to the low number of women in scientific fields. The leadership at NSF and NIST also supported this effort.)

Commercial Space Act of 1998 PL: 105-303
(Republican leadership in its efforts to shrink the role of government sought to expand the share private companies played in the operations at NASA and the construction of the space station.)

Next Generation Internet Research Act of 1998 PL: 105-305
(With the explosion in the development and use of the Internet, this legislation removed from NSF the responsibility of overseeing its operation and placed it under the control of the private organization, ICANN.)

Technology Administration Act of 1998 PL: 105-309
(In an effort to expand the granting of research funds to all areas of the country in a more equitable fashion, the act created EPSCOT to oversee the program to expand technology activities. The legislation also created awards in the fields of health care and education under the Malcolm Baldrige program.)

106th Congress

Methane Hydrate Research and Development Act of 2000 PL: 106-193
(Congressman Doyle who had served on the Committee was interested in promoting an energy act that would benefit his state. The legislation was designed to find a method to efficiently extract methane, a major component of natural gas, from areas on the ocean floor.)

107th Congress

National Construction Safety Team Act PL: 107-231
(In the aftermath of 9/11, the Committee established a new set of procedures under NIST, which created the National Construction Safety Teams. They would have five areas of authority: identify technical causes of building failure, review response and evacuation plans, develop a set of recommendations to improve building codes, provide research concerning structural safety, and be permitted to do onsite inspections.)

Help America Vote Act of 2002 PL: 107-252

(As a result of the flawed Florida election process in 2000, NIST was charged with creating a standard set of rules and procedures for national elections.)

Inland Flood Forecasting and Warning System

Act of 2002 PL: 107-253

(North Carolina suffered several damaging floods that resulted from hurricanes and other tropical weather patterns, and this act required NOAA to improve its forecasting procedures, create a new type of warning system and improve the quality of local weather forecasters, train responders, and review weather trends and their future implications.)

Enterprise Integration Act of 2002 PL: 107-277

(This technical piece of legislation dealt with the Internet and the interfacing of different systems and the protection of proprietary resources. It called for the creation of software “dictionaries” that would protect each party while at the same time permit companies to interface their computer systems.)

Homeland Security Act of 2002 PL: 107-296

(In conjunction with a number of other congressional committees, the Committee developed legislation and guidelines that assisted in the creation of the Department of Homeland Security. The Committee’s main contribution to the act centered on establishing a set of science and technical standards.)

Great Lakes Legacy Act of 2002 PL: 107-303

(Chairman Vernon Ehlers of Michigan was the moving force behind this legislation, which dealt with EPA overseeing contaminated sediment in the Great Lakes.)

Cyber Security Research and Development Act PL: 107-305

(With the growing importance of the Internet and the need to provide quality security, the Committee charged NSF and NIST to allot funds to protect the network from unlawful intrusions.)

108th Congress

Malcolm Baldrige Awards PL: 108-320

(This legislation extended the awards category to include nonprofit organizations and the government.)

Department of Energy High-End Computing Revitalization

Act of 2004 PL: 108-423

(Another technical act involving high performance computers utilized in the sciences and technologies, the legislation also extended the Metric Conversion Act of 1975 and the Savings Construction Act of 1996, which obligated all contractors dealing with the federal government to use the metric system.)

Norman Y. Mineta Research and Special Programs
Reorganization Act PL: 108-426

(This act created the Research and Innovative Technology Administration, which replaced the Research and Special Programs Administration in the Department of Transportation.)

Commercial Space Launch Amendment Act of 2004
PL: 108-492

(The Department of Transportation was given the task of increasing the effectiveness of safety programs in the realm of private sector launch vehicles.)

109th Congress

Energy Policy Act of 2005 PL: 109-58

(A product of several committees and the first major energy legislation in almost ten years, the act included new educational programs and the setting of standards for future lighting, fossil and nuclear energy programs, and alternative forms of power for buses.)

Tsunami Warning and Education Act PL: 109-424

(In the wake of the disastrous tsunamis in the Indian Ocean on December 26, 2004, NWS and NOAA were charged with creating an effective warning system in all the bodies of water around the U.S.)

Nat. Integrated Drought Info. Systems Act PL: 109-430

(This legislation created NIDIS, which was established to conduct research and do assessments in order to put into place an operational drought warning program.)

110th Congress

Energy Independence PL: 110-140

(This energy act builds on previous legislation dealing with conservation, alternative energy sources and supplies including geothermal, solar, biofuels, and the elimination of carbon from the atmosphere.)

America COMPETES Act PL: 110-69

(Chairman Gordon sponsored this legislation, which increased funding of NSF and restructured NIST's Advanced Technology Program into the Technological Innovation Program. The thrust of the act was to increase educational programs that will keep America competitive around the world in the fields of science and technology.)

Methamphetamine Remediation Research Act of 2007

PL: 110-143

(Under Chairman Gordon's leadership, the Committee developed directives for EPA and NIST to create guidelines concerning all aspects of the methamphetamine crisis at the federal, state, and local levels of government.)

Full and Joint Hearings, Committee on Science and Technology 85th-110th Congresses

Note: *The full and joint Committee hearing titles are listed below for each Congress. The tab numbers listed at the end of the title for each hearing are provided as a reference tool and refer to the Committee's bound hearing volumes. (See the note for the 105th Congress concerning its organization.) The information provided in brackets after each Congress denotes the total number of Committee and subcommittee hearings followed by the number of full and joint Committee hearings.*

85th Congress [Select Committee] (1 Hearing-1 Full or Joint) Astronautics and Space Exploration

86th Congress, 1st session (29 Hearings-28 Full or Joint)

Leasing of Buildings in the Dist. of Columbia by the NASA (No. 1)
Authorizing Appropriations to the NASA (No. 2)
International Control of Outer Space (No. 7)
The Ground-Cushion Phenomenon (No. 8)
Satellites for World Communication (No. 9)
Missile Development and Space Sciences (No. 11)
Nuclear Explosions in Space (No. 15)
Space Propulsion (No. 16)
1960 NASA Authorization (No. 17)
Scientific Manpower and Education (No. 18 and 19)
Basic Research in Agriculture (No. 20)
Century 21 Exposition (No. 21)
Chemical, Biological and Radiological Warfare Agents (No. 22)
Dissemination of Scientific Information (No. 24)
Briefing by National Bureau of Standards (No. 25)
Programs of Atlas and Polaris Missiles (No. 34)
Jupiter Missile Shot- Biomedical Experiments (No. 35)
Weather Modification (No. 36)
Meeting with the Astronauts (No. 37)
National Defense Plan Briefing (No. 38)
Boron High Energy Fuels (No. 40)
To Amend the NSF Act of 1950 (No. 41)
Miscellaneous Reports (No. 42)
National Medal of Science (No. 44)
Basic Scientific and Astronautic Research in DOD (No. 45)
Soviet Space Technology (No. 46)
Property Rights in Inventions Made under Federal Space
Research Contracts (No. 47)

86th Congress, 2nd session *(15 Hearings-10 Full or Joint)*

The Production of Documents by NASA for Committee on Science and Astronautics (No. 1)
Transfer of the Development Operations Division of the Army Ballistic Missile Agency to NASA (No. 2)
Review of Space Program (No. 3)
1961 NASA Authorization (No. 4)
To Amend NASA Act of 1958 (No. 5)
A Bill to Make American Nationals Eligible for Scholarships and Fellowships by NSF Act of 1950 (No. 6)
Frontiers in Oceanic Research (No. 7)
Lunar Mapping and Construction in Support of Space Programs (No. 8)
Establishment under the NSF of a National Science Academy (No. 14)
Miscellaneous Committee Business (No. 15)

87th Congress, 1st session *(22 Hearings-18 Full or Joint)*

Discussion of U.S. Satellite Tracking System (No. 1)
Research and Development for Defense (No. 2)
Project Rover (No. 3)
Space Propulsion Technology (No. 4)
To Amend the NASA Act of 1958 (No. 5)
Discussion of Soviet Man-in-Space Shot (No. 6)
1962 NASA Authorization: Part 1-3 (No. 7)
Defense Space Interests (No. 8)
The NBS and the Space Program (No. 9)
Equatorial Launch Sites-Mobile Sea Launch Capability (No. 10)
Annual Review of the NSF (No. 11)
Inflatable Structures in Space (No. 12)
Orbital Rendezvous in Space (No. 13)
To Amend the NASA Act of 1958 (No. 15)
Awards of Fellowships and Scholarships under NSF Act (No. 16)
National Meteorological Satellite Program (No. 17)
Contemporary and Future Aeronautical Research (No. 18)
Communications Satellites (No. 19)

87th Congress, 2nd session *(18 Hearings-8 Full or Joint)*

1963 NASA Authorization: Part 1 and 2 (No. 2)
Panel on Science and Technology, Fourth Meeting (No. 3)
NASA Lunar Orbit Rendezvous Decision (No. 6)
NSF Briefing (No. 7)
Limitation on Indirect Costs in Research Grants (No. 8)
Amending the Organic Act of NBS (No. 11)
Research on New Transportation Methods (No. 12)

Ways and Means of Effecting Economics in the National Space Program (No. 17)

88th Congress, 1st session (*7 Hearings-3 Full or Joint*)

Panel on Science and Technology, Fifth Meeting (No. 1)

Space Posture (No. 2)

1964 NASA Authorization: Part 1 (No. 3)

88th Congress, 2nd session (*14 Hearings-5 Full or Joint*)

Amending the Act to Redefine the Units of Electrical and Photometric Measurements on S. 1064 (No. 4)

Amending the Organic Act of the NBS (No. 5)

Amending the Standard Container Act of 1928 (No. 7)

Memorial to Dr. Robert H. Goddard (No. 9)

1965 NASA Authorization: Part 1 (No. 10)

89th Congress, 1st session (*10 Hearings-5 Full or Joint*)

Panel on Science and Technology, Sixth Meeting (No. 1)

NASA Authorization: Part 1 (No. 2)

NAS Panel on Basic Research and National Goals (No. 3)

The Metric System (No. 4)

Memorial on Dr. Robert Goddard (No. 5)

89th Congress, 2nd session (*13 Hearings-4 Full or Joint*)

The Metric Study Bill (No. 1)

Consideration of Subcommittee Reports. Master Planning of NASA Installations (No. 2)

Panel on Science and Technology, Seventh Meeting (No. 3)

NASA Authorization: Part 1 (No. 4)

90th Congress, 1st session(*14 Hearings-3 Full or Joint*)

Panel on Science and Technology, Eight Meeting (No. 1)

1968 NASA Authorization: Part 1 (No. 2)

Presentation of Report by Special Panel on Applied Science and Technological Progress of NAS (No. 5)

90th Congress, 2nd session (*6 Hearings-2 Full or Joint*)

Panel on Science and Technology, Ninth Meeting (No. 1)

1969 NASA Authorization: Part 1 (No. 3)

91st Congress (*23 Hearings-6 Full or Joint*)

Panel on Science and Technology, Tenth Meeting (No. 1)

1970 NASA Authorization Part I and 1970 NASA Authorization

Index (Vol. II) (No. 3)

Metric System Study Authorization (No. 7)

Panel on Science and Technology, Eleventh Meeting (No. 15)

- 1971 NASA Authorization Vol. I and II (No. 16)
 The Apollo 13 Accident (No. 19)
- 92nd Congress** *(26 Hearings-9 Full or Joint)*
 Panel on Science and Technology (No. 1)
 1972 NASA Authorization (No. 2)
 1972 NSF Authorization (No.3)
 Apollo 15 Mission Report (No. 9)
 Panel on Science and Technology (No. 13)
 1973 NASA Authorization ((No. 15)
 1973 NSF Authorization (No. 16)
 Apollo 16 Mission Report (No. 18)
 Fourth Annual Report of the National Science Board (No.21)
- 93rd Congress** *(52 Hearings-15 Full or Joint)*
 1974 NASA Authorization: Part, 1 and 5 (No. 1)
 Testimony from Skylab Astronauts (No. 4)
 Federal Policy, Plans, and Organization of Science and Technology
 (No. 8)
 Conservation and Efficient Use of Energy (No. 14, 18-20)
 Skylab 3: Parts 1-4 (No. 17-20)
 1975 NASA Authorization, Index for Hearings and Part I (No. 25)
 Briefing by Skylab IV Astronauts (No. 34)
 Briefing on Brussels Conference on Satellite Transmissions (No. 35)
 Federal Policy, Plans, and Organization for Science and Technology:
 Part II (No. 50)
- 94th Congress** *(109 Hearings-13 Full or Joint)*
 1976 NASA Authorization Vol.1 (No. 1)
 NSF 1976 Posture Hearing (No. 8)
 ERDA Authorization 1976 and Transition Period Overview (No.9)
 National Science Policy and Organization Act of 1975 (No. 15)
 NSF Briefing to the Committee on Science and Technology (No. 20)
 Comprehensive Plan for Energy Research, Development and
 Demonstration (No. 28)
 Loan Guarantee Provision (No. 40)
 Synthetic Fuel Loan Guarantees, Vol. I and II (No. 56)
 1977 NASA Authorization (No. 66)
 ERDA Authorization FY 1977-Overview (No. 92)
 Review of GAO Report on Commercialization of Emerging Energy
 Technologies (No.99)
 Research Programs to Aid the Handicapped (No. 104)
 The Conduct of EPA's "Community Health and Environmental
 Surveillance System" (CHESS) Studies (No. 109)
- 95th Congress, 1st session** *(52 Hearings-3 Full or Joint)*
 1978 ERDA Authorization Vol. I (No. 2)
 1978 NASA Authorization Vol. III (No. 8)

Joint Hearings

Federal Role in Criminal Justice and Crime Research

95th Congress, 2nd session (67 Hearings-7 Full or Joint)

DOE Authorization Vol. I (No. 53)

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Oversight – Review of the Magnetic Fusion

Program of DOE (No. 86)

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Ionizing Radiation (No. 109)

Joint Hearings

Research into Crimes against the Elderly – Part I and II

Oversight of Science and Technology Policy

96th Congress (183 Hearings-34 Full or Joint)

1980 DOE Authorization, Vol. I (No. 1)

Oversight – President's Civilian Space Policy (No. 10)

1980 NASA Authorization, -Vol. I, Part 2 (No. 11)

Panel Concerning the Long-Range Energy Needs of This and Other Nations (No. 12)

Joint Seminars on the U.N. Conference on Science and Technology for Development (UNCSTD) (No. 13)

Oversight – Appropriate Technology, Vol. I (No. 20)

Research and Development in the Federal Budget (No. 23)

U.S. Policies and Initiatives for the U.N. Conference on Science and Technology for Development (No. 28)

Oversight–Cost Estimation Techniques for Emerging Synthetic Fuels Technology (No. 34)

Productivity and Technical Innovation (No. 36)

Applications of Space Technology for the Elderly and

Handicapped (No. 38)

1980 NASA Authorization Index (No. 42)

Oversight – Synthetic Fuels, Vol. XI (No. 56)

Oversight – Waste-to-Energy, Vol. VIII (No. 61)

Oversight – National Solar Energy Policy, Vol. VI (No. 68)

Industrial Innovation (No. 69)

Risk/Benefit Analysis in the Legislature Process (No. 71)

Helsinki Forum and East-West Scientific Exchange (No. 89)

Innovation–Startup, Growth, and Survival of Small New Technology Firms (No. 93)

Agricultural Productivity and Environmental Quality (No. 96)

1981 DOE Authorization, Vol. I (No. 108)

Posture Hearings (NASA and FAA) (No. 112)

NAS Report: Energy in Transition, 1985-2010 (No. 119)

Research and Development Authorization Estimates Act (No.124)

Seminar on Research, Productivity and the Nat. Economy (No.127)

Information Technology in Education (No. 134)

Posture Hearings: NSF, NBS, FEMA, EPA, NOAA (No. 138 & 143)

Technology Trade (No. 149)
Energy Management Partnership Act, Vol. I (No. 151)
1981 NASA Authorization Index (No. 158)
International Energy Development Assistance Programs (No. 169)
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Outlooks from Nobel Prize Winners (No.177)

97th Congress *(180 Hearings-31 Full or Joint)*

Fiscal Year 1982 DOE Authorization, Vol. I (No. 2)
Flight of STS-1 with Astronauts Young et al (No.19)
1982 NASA Authorization Vol. I-V (No 20)
Implementation Plan for a National Nutrition Status
Monitoring System (No. 23)
Closeout Costs-Clinch River Breeder Reactor Project (No. 30)
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Future of General and Commuter Aviation Tech. and Trade (No.42)
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Flight of STS-2 with Joe Engle and Richard Truly (No.70)
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Flight of STS-3 with J. Robert and C. Fullerton (No. 82)
Oversight – National Institute of Handicapped Research (No. 87)
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Fiscal Year 1983 DOE Budget, Review-Vol. I (No. 100)
Oversight Telecommunications Act of 1982 (No. 103)
Flight of STS-4 with Mattingly and Hartsfield (No. 109)
Federal Commitment to Human Nutrition Research (No. 116)
U.S. Science and Technology under Budget Stress (No. 118)
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Deforestation: Environmental Impact and Research Needs (No. 161)
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EPA Oversight: One-Year Review (No. 168)
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98th Congress *(150 Hearings-20 Full or Joint)*

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1984 DOE Authorization, Vol. I (No. 12)
Flight of STS-7 with Crippen, et. al. (No. 13)

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 Office of Science and Technology Policy (No. 31)
 Views on Science Policy of the Nobel Laureates for 1982 (No. 34)
 Flight of STS-8 with Truly, et. al. (No. 39)
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 Results of Space Shuttle Flight 41-C (No. 83)
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 Proceedings of the Tri-Committee Business Advisory Panel on
 Uranium Enrichment (No. 121)
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 Science and Technology Posture Hearing with the Director of the
 Office of Science and Technology Policy (No. 134)
 Agricultural Weather Services (No. 149)

99th Congress *(165 Hearings-41 Full or Joint)*

1985 Science and Technology Posture Hearing with the Director of
 the Office of Science and Technology Policy (No. 1)
 Results of Space Shuttle Flight 51-A (No. 7)
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 Science Policy Study Vol. 1 (No. 46)
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 USDA Licensing of a Genetically Altered Veterinary
 Vaccine (No. 115)
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 Warm Water Aquaculture (No.119)
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 Science Policy Study Vol. 17 (No. 134)
 Investigation of *Challenger* Accident, Vol. I-II (No. 137 and 139)
 Science Policy Study Vol. 24 (No. 140)
 Science Policy Study Vol. 20 (No. 145)
 Results of Space Shuttle Flight 61-C (No. 149)
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 Office of Science and Technology Policy (No.151)
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100th Congress (154 Hearings-15 Full or Joint)

Posture Hearing with Science Advisor to the President (No. 1)
 Flight of the *Voyager* (No. 2)
 NASA's Response to the Committee's Investigation of the
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101st Congress (169 Hearings-24 Full or Joint)

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 Funding in the 1990s (No. 2)
 Overview of the Global Food and Population Situation (No.3)
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 Technology Effort (No.7)
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 Review of the Site Selection Process for the Superconducting Super
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 The Effect of Changing Export Controls on Cooperation in Science
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102nd Congress *(174 Hearings-27 Full or Joint)*

1991 Science and Technology Posture Hearing with the Director of
 the Office of Science and Technology Policy (No. 1)
 National Energy Strategy, Part I & II (No. 3)
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 Review and Implementation of the Report of the Advisory
 Committee on the Future of the U.S. Space Program (No. 12)
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 The Future of the DOE Laboratories (No. 73)
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 Videoconference with Moscow (No. 95)
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104th Congress (78 Hearings-22 Full or Joint)

Is Today's Science Policy Preparing Us for the Future (No. 1)
The Hydrogen Future Act of 1995 (No. 2)
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Federal Technology Transfer Policies and Our Federal Laboratories (No. 13)
Restructuring the Federal Science Establishment (No. 14)
Cyber porn: Protecting Our Children from the Back Alleys of the Internet (No. 16)
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Mike Waszkiewicz holds the ice coring drill while Dr. Karl Kreutz removes an ice core from the Clark Glacier in the McMurdo Dry Valleys. Dr. Kreutz's research team drilled a 160-meter core to study the regional climate from the past 2,000 years. The data will help scientists predict future climate change in the area. (Photo courtesy of National Science Foundation)

Biographies of the Chairmen of the
Select Committee and the
Committee on Science and
Technology

Ranking Members of the Committee
(1958-2008)



John McCormack

Select Committee, Chairman

John McCormack was born in Boston on December 21, 1891, and became an attorney in 1913. After serving in the U.S. Army during World War I, the people of Massachusetts elected him to the state house and senate. Through a special election, McCormack became a Member of the House on November 6, 1928, and rose to be the Democratic Majority Leader during the 76th Congress in 1939. After serving under Speaker Sam Rayburn since September 16, 1940, the House elected McCormack Speaker on January 10, 1962. As Majority Leader, McCormack exhibited leadership abilities that enabled him to work with Members from both parties. On March 5, 1958, McCormack introduced a resolution to create a Select Committee of 13 Members of the House to review America's science and space programs in light of Russia's launch of *Sputnik*. McCormack proved to be an ideal leader of the Select Committee and was personally involved in choosing Members and in the equally important task of hiring a professional staff who could work together in a bipartisan fashion. McCormack also was directly engaged in developing lists of witnesses that would give testimony before the Select Committee. His interests in the field extended well beyond America's space program and the hysteria generated by *Sputnik* and included a desire to have the President create a cabinet level department of science. McCormack's generation had seen America take the lead in science during the 1930s and 1940s, and he wanted to ensure it maintained that status. Chairman McCormack also established liaisons with a reluctant President Eisenhower to ensure support for the passage of the bill to create the National Aeronautics and Space Administration (NASA). Once McCormack was assured that the Committee was firmly established, he stepped back from an active leadership role in 1959 and turned over the daily operations of the Committee to Overton Brooks.

Joseph W. Martin

Select Committee, Ranking Member



Best known in history as the Speaker of the House in the late 1940s and during President Eisenhower's first term in office, Martin, (1884-1968) provided an important service to the nation in the wake of the *Sputnik* hysteria raised in 1957-1958. A native son of Massachusetts, Martin was born on November 3, 1884, and worked as a newspaper reporter and publisher before moving into the world of politics. He was a lifelong Republican and held several state level offices prior to his election to Congress. From the time Martin first entered the House in 1925 through the end of the Truman administration, he was a staunch conservative, however, during the first part of the Eisenhower Administration, Martin joined the centrists in the party. He approved of the president's international policies and supported funds being spent on education. In the late 1950s, Democrats considered Martin to be a bipartisan leader and someone with the political temperament that would allow the two parties to successfully work together. In the wake of Russia's launch of *Sputnik* on October 4, 1957, Speaker Sam Rayburn and Majority Leader McCormack asked Martin to select several Republican committee leaders to serve on the new Select Committee on Astronautics and Space Exploration. Martin chose some of the most influential individuals on the Armed Services, Foreign Affairs, Judiciary, Appropriations, and Banking and Currency Committees. His knowledge of the experts needed to staff the new Committee proved critical to its ultimate success. Martin remained the Committee's Ranking Member through the 89th Congress, which ended in 1966. However, after losing his position as the House's Minority Leader on January 6, 1959, Martin became an infrequent participant in Committee activities. He encouraged James G. Fulton of Pennsylvania to act as the de facto Committee Ranking Member during Martin's remaining years on the Committee.



Overton Brooks

Chairman, 1959-1961

While on a trip to Paris in October 1957, Brooks (1897-1961) read about the Soviet Union's space coup, *Sputnik*. Brooks immediately cut his trip short and returned to the States. Elected to the House in 1936 and having an uncle who had served in the House and Senate, Brooks knew the House and had

risen to be the second ranking member on the Armed Services Committee during the 85th Congress. Majority Leader McCormack chose Brooks to join the Select Committee because of his expertise. Brooks had introduced his own resolution to create a new committee weeks before McCormack's, but Brooks' proposal never came out of committee. Brooks worked on the Select Committee that created NASA and gained the support of McCormack to become the chairman of the new Committee on Science and Astronautics. When the 86th Congress convened in 1959, Brooks and the Committee were faced with the Soviet launch of *Lunik*, a satellite launched to pass by the moon. Brooks proved to be an energetic and dedicated leader who worked long hours and on weekends. As the chairman, he initially followed the methods of Carl Vinson on the Armed Forces Committee and sought to personally manage everything that came before the Committee. Brooks resisted establishing subcommittees until other Members forced him to relent. However, he only allowed the establishment of temporary subcommittees that held hearings on the space program, manpower, education, weather, and agriculture and were then disbanded. To help the Committee in its work, Brooks created a staff of authorities in several fields and even sought military advice. Since the Committee was new, Brooks tested the limits of its jurisdiction, which created testy exchanges with other leaders including Vinson. Even with all the controversies, Chairman Brooks enjoyed the unwavering support of his friend and ally, Speaker John McCormack.

George F. Miller

Chairman, 1961-1973

George Miller (1891-1982) graduated from St. Mary's College in 1912 in civil engineering. During World War I, he served as a U.S. Army lieutenant in the artillery, and in the late 1930s, he entered politics. Miller was elected to the House in 1944, representing Oakland, California. Miller became the third ranking member of the



Committee on Science and Astronautics in 1959 and was one of the few Members to have an engineering background. Like Brooks, Miller had served on the Armed Forces Committee and disliked Carl Vinson's management style. When Miller became chairman, he preferred to work in a more inclusive manner. His operating philosophy was to get things done in a professional manner and not in a flurry of activity just to make newspaper headlines or improve his political position on the Hill. Chairman Miller saw the need to create subcommittees that would allow Members with particular interests and expertise to focus on specialized areas of science and space. In the 88th Congress, Miller named Emilio Daddario the chairman of the new Science, Research and Development Subcommittee, which would become the most influential subcommittee during the early years of the Committee. Miller's use of more personal dialogue when dealing with NASA officials, which included lunches and informal meetings instead of impromptu, high-pressure hearings, contributed enormously to the success of the agency's programs. Chairman Miller also favored the adoption of the metric system and continued to support the workings of the Panel on Science and Technology created in 1959, which sought expert input from NASA, NBS, and NSF. Miller looked for opportunities to create a better understanding between scientists and Congress and improve educational standards in mathematics and science. Chairman Miller led the Committee until he was defeated in his 1972 reelection campaign.



Olin E. (Tiger) Teague **Chairman, 1973-1979**

One of the more popular members of the House, “Tiger” Teague (1910-1981) came to the Hill in 1946. Teague, who fought in Europe commanding an infantry battalion, spent two years in a U.S. Army hospital recovering from wounds. He received the Silver

and Bronze Stars, and the Purple Heart, all with clusters for his distinguished service. With his military background, Teague was eminently qualified to be chairman of the Veterans Affairs Committee from 1963-1972. Teague joined the Committee on Science and Astronautics at its inception in 1959 and chaired the Manned Space Flight Subcommittee, which investigated the Apollo 1 fire. Because of his political temperament, Teague was able to conduct a thorough and fair investigation that helped NASA move ahead with its lunar landing program. Upon being elected chairman of the Committee in 1973, Teague hired Jack Swigert, Command Module pilot of Apollo 13, as the Committee’s executive director. Teague wanted to improve the Committee’s relationship with the agency and better understand NASA’s programs in the post-Apollo era. The chairman successfully led a bipartisan group of shuttle supporters against strong opposition on the Committee. Teague also pushed the space agency to establish more outreach programs, build a visitor’s center at Cape Canaveral, and educate the people concerning the values of space exploration. After President Nixon eliminated the office of science advisor, Chairman Teague and Ranking Member Charles Mosher worked together and persuaded President Gerald Ford to reinstate the office in 1975. During his final years in office, Teague confronted another divisive issue with the Clinch River Breeder Reactor. Teague fought hard to build a consensus both in the Committee and House on the controversial reactor program that raised serious and ongoing questions concerning the nation’s energy policy, nuclear security, and the environment.

Don Fuqua
Chairman, 1979-1987



Don Fuqua was elected in 1962 from a Democratic stronghold in northern Florida, and he enthusiastically supported President John Kennedy's vision for the space program. Fuqua served in the Medical Corp during the Korean War and after graduating from the University of Florida, he managed a farm. Fuqua joined the Committee his first year and became a member of the Manned Space Flight Subcommittee. While on that subcommittee, he participated in numerous hearings on NASA's Mercury, Gemini, and Apollo manned space programs. One of the more difficult hearings dealt with the 1967 fire on Apollo 1 that killed three astronauts. Fuqua had interviewed a number of astronauts just prior to the fire and they assured him that they understood the inherent risks in the space program. Fuqua concurred with the Committee's final report that identified a number of major flaws, which had to be corrected before NASA could return to space. In 1973 Fuqua became the chairman of the Manned Space Flight Subcommittee and provided important leadership of the shuttle program. He also oversaw the joint American and Soviet space effort that helped reduce Cold War tensions with the successful Apollo-Soyuz program in 1975. By the late 1970s, Fuqua worked closely with Chairman Teague concerning the shuttle and the Clinch River Breeder Reactor. As chairman of the Committee, Fuqua dealt with the 1979 energy crisis and worked to improve education in the sciences. He launched a two-year review of the country's science policy in order to develop strategies for the future. In his last term as Chairman, Fuqua unhappily faced a second oversight investigation of NASA in the aftermath of the destruction of the space shuttle *Challenger* during launch on January 28, 1986. He called for a full set of hearings that would investigate the problems at NASA leading up to the disaster and ensured that NASA would institute measures to guarantee the continuation of a safe and successful shuttle program.



Robert A. Roe

Chairman, 1987-1991

Robert Roe, born in 1924, served in the U.S. Army during World War II and entered New Jersey state politics in 1956. He became a prominent leader in the state and the fight for the passage of important water projects. Educated as an engineer and considered a tireless worker, Roe won a special election to the House in 1969. He joined the Committee on Science and Astronautics during the 92nd Congress in 1971. Initially, Roe did not take a strong interest in the Committee until the space shuttle *Challenger* disaster in January 1986. The following year the House leadership selected Roe to be chairman, at which time he became much more engaged in Committee activities. Roe strongly supported the shuttle program. He also pressed NASA to expand its satellite programs to study the planets. As Chairman, Roe led the Committee in its oversight investigations concerning the Hubble Space Telescope's flawed lens. Roe also sought the active involvement of private industry in space technology as part of the Reagan era effort to reduce the size of government. He wanted companies to research and develop their own programs and explore what advances space-based projects might offer. Roe expanded the Committee's efforts to protect the environment and worked to establish a National Toxic Waste Center under the auspices of the Environmental Protection Agency. He fought to stop the dumping of sludge into the ocean, and Roe led the Committee to promote bills dealing with monitoring the quality of indoor air, radon gas, and child nutritional studies. With Albert Gore's departure from the Committee in 1986, Roe enthusiastically continued Gore's work to study the implications of the ozone hole over the Antarctic. In the field of energy and with his background in engineering, Roe supervised the Committee's oversight duties and worked to pass the Superconducting Super Collider Project Authorization Act in 1990 during his last term as chairman in the 102nd Congress.

George E. Brown, Jr.

Chairman, 1991-1995

Born into a Quaker family, George Brown (1920-1999) served in the U.S. Army during World War II and graduated from the University of California in 1946 with a degree in industrial physics. Brown also worked for the city of Los Angeles during the 1940s and 1950s before entering into politics. Elected as a Democrat to the House in 1962, he served four terms before making an unsuccessful run for the Senate. Brown returned to the House on January 3, 1973, and served until his death on July 15, 1999. Although an opponent of many military projects, he was a strong supporter of the space program, protection of the environment, and promotion of alternative energy sources. After he first joined the Committee at the beginning of his second term in 1965, in the 94th Congress, Brown became chairman of the Environment and the Atmosphere Subcommittee. During his first term as chairman, Brown led his subcommittee in 15 hearings dealing with NOAA and EPA, renewable energy programs, water quality, dumping waste in the ocean, solid waste management, national climate change issues, and atmospheric and ozone studies. Chairman Brown supported non-petroleum fuels for cars and trucks and the research and development of electric and hybrid technology for vehicles. With his interest in engineering, Brown also strongly promoted technological advancements in aviation and the exploration of space. As chairman, he wanted to develop partnerships between the government and the private sector to create new scientific and technological projects that would benefit the lives of average citizens. After the Republicans gained control of the House in 1994, Brown became the ranking member. He took on the role of the loyal opposition, but Brown still supported NASA's unmanned satellite projects and rose in opposition to the costly space station.





Robert S. Walker
Chairman, 1995-1997

Born in northwestern Pennsylvania in 1942, Robert Walker taught in a public school upon graduating from the University of Delaware. After serving six years in the National Guard, he entered the world of politics. In 1976, the people in the district east of Harrisburg, PA, elected him to the

House as a Republican. Walker joined the Committee on Science and Technology and used his early years to become an expert in the rules and operations of the House. Walker had risen to the position of ranking member on the Committee during the 102nd and 103rd Congresses (1991-1995) and led fellow Republicans in frustrating many of the legislative efforts of Chairman George Brown. During this same period, Walker joined Newt Gingrich and formed a coalition that succeeded in gaining a majority in the House during the 1994 elections. When the 104th Congress convened, Walker became chairman of the Committee and renamed it the Committee on Science. The Republican leadership wanted to improve efficiency in the House and mandated that each Committee have a maximum of four subcommittees. Walker also reduced the number of hearings from 174 in the preceding Congress to just 78 while increasing the number of bills passing through the Committee. Walker focused his efforts on six areas: promote non-commercial federal research and development; oversee the relevance of programs; order government laboratories to work on projects only they could manage; cut funds to programs in the private sector; carefully control groundbreaking projects; and ensure all research and development projects be technically within the realm of the possible. Walker's interest in hydrogen energy, climate change, and earthquake studies were major issues that held center stage during the 104th Congress. In 1996, NASA awarded Walker the Distinguished Service Medal, which was the first time this award was given to a sitting Member.

F. James Sensenbrenner, Jr.
Chairman, 1997-2001

F. James Sensenbrenner, Jr., was born in Chicago, Illinois, in 1943. He graduated in 1965 from Stanford University and received a Jurist Doctorate from the University of Wisconsin Law School in 1968. In the 1970s, Sensenbrenner served in the state legislature until elected to the House in 1978 as a Republican. After his party gained control of the House in 1994, Sensenbrenner pressed his colleagues to adopt the policy that they would live by the laws and regulations they required the rest of the nation to follow. In 1997, he became chairman of the Committee on Science and continued the Committee's history of bipartisanship while expanding its oversight duties. He followed his Republican predecessors' overall philosophy as to the guidelines the Committee would follow and carefully oversaw the use of public funds. He wanted government laboratories to focus on projects that only the government could accomplish and let private laboratories work on commercial endeavors. Sensenbrenner increased the amount of legislation passed out of the Committee and strongly supported NASA's space programs. However, he questioned the executive branch concerning the joint American-Russian space station and the expenditure of taxpayer money when America's partner appeared not to be fulfilling its obligations. Sensenbrenner also sought to provide opportunities to the private sector in the space program and supported the launching of satellites with the capability to aid mining, timber, and agricultural interests. During his first Chairmanship and having jurisdiction over climate change and environmental issues, Speaker Gingrich selected Sensenbrenner to lead the House delegation to the Kyoto conference in 1997. Upon his return, Sensenbrenner held hearings on the proposed standards and used the forum to raise questions concerning the impact of implementing the accords on the American economy and the lack of international cooperation.





Sherwood L. Boehlert

Chairman, 2001-2007

In 1982, the people in upstate New York elected Sherwood Boehlert as a Republican to the House. Born in Utica in 1936, Boehlert served in the U.S. Army for two years before graduating from Utica College with a BA in 1961. Boehlert joined the Committee as a first-term Member and supported environmental issues and efforts to curb acid rain. During his work on the Committee, other Members considered him to be bipartisan and a consensus builder. His first assignment was with the Science, Research, and Technology subcommittee, and he worked with them on genetic engineering, earthquake studies, education, and fire prevention issues. During the 100th-102nd Congresses as ranking member on the Science Subcommittee, Boehlert strongly opposed the Superconducting Super Collider program because of cost issues. Boehlert rose in seniority in the Committee, and after Sensenbrenner left at the end of the 106th Congress, Boehlert became the chairman in 2001. The Committee faced several major issues in the wake of September 11, 2001, and Boehlert wanted to make science and technology important tools in the war against terror. As chairman, he held extensive hearings into the collapse of the World Trade Center in New York City and the part fire played in the ultimate failure of the structural elements and fasteners used in the building. He guided the Committee in its crucial role in the creation of the Department of Homeland Security and supported their science and technology programs. Shortly after the beginning of the 108th Congress, Chairman Boehlert faced the sad and complex duty of reviewing NASA's operations and investigating the space shuttle *Columbia* disaster. Before retiring from the House at the end of the 109th Congress, Boehlert also worked with NASA on whether to extend the Hubble Space Telescope project and lent his support to President Bush's proposed mission to return to the moon and eventually send a manned craft to Mars.

Bart Gordon

Chairman, 2007-Present



In 1984, Bart Gordon was elected to succeed Albert Gore, Jr., in the House of Representatives. Gordon was born in 1949, and after graduating from Middle Tennessee State University with honors and from law school at the University of Tennessee, he opened a private law practice in 1974.

In the late 1970s and 1980s, he served the Democratic Party at the state level. Gordon joined the Committee as a freshman in the 99th Congress and sat on the Transportation, Aviation, and Materials and the Space, Science, and Applications Subcommittees. His interests on these committees included working with NASA's shuttle program and Russia's participation in joint space projects. Gordon also focused on mine safety, air traffic control, and high-speed rail transport. In 1987, Gordon left the Committee upon appointment to the exclusive Rules Committee but returned in 1995 for the 104th Congress. In the next three Congresses, he served as ranking member on the Space and Aeronautics Subcommittee, which conducted hearings into solar power, the shuttle program, asteroid threats, and NASA's future goals. Gordon became the Committee's ranking member during the 108th Congress and in the 109th Congress focused on scientific integrity issues, the off-shoring of U.S. jobs and establishing health-based guidelines at NIST and EPA for the clean up of illegal methamphetamine labs. Gordon assumed chairmanship of the Committee in 2007 and spearheaded passage of the America COMPETES Act, which creates thousands of highly qualified K-12 science teachers; expands support for graduate students and early-career researchers; authorizes a doubling of key agencies' basic research budgets; and establishes an Advanced Research Projects Agency for Energy to mobilize the scientific enterprise to help solve the nation's energy security problem. The Committee also made significant contributions to the 2007 Energy Bill with nine bills included in the comprehensive legislation.

**Ranking Members on the
Committee on Science and Technology**



**Joseph Martin (R-MA)
1959-1967**



**James Fulton (R-PA)
1967-1973**



**Charles Mosher (R-OH)
1973-1977**



**John Wydler (R-NY)
1977-1981**

**Ranking Members on the
Committee on Science and Technology**



**Larry Winn (R-KS)
1981-1985**



**Manuel Luján (R-NM)
1985-1989**



**Robert Walker (R-PA)
1989-1995**



**George Brown (D-CA)
1995-1999**

**Ranking Members on the
Committee on Science and Technology**



Ralph Hall (D/R-TX)
1999-2003 & 2007-Present



Bart Gordon (D-TN)
2003-2007

**Membership
of the Select Committee,
Committee on Science and Technology
and Subcommittees**

85th – 110th Congresses

Members are listed by order of seniority, with the majority party in the left column and the minority party on the right. Seniority is accrued according to the internal rules of each party.

85th Congress
Select Committee

JOHN W. MCCORMACK, MA, *Chair*

OVERTON BROOKS, LA	JOSEPH W. MARTIN, JR., MA
BROOKS HAYS, AR	LESLIE C. ARENDS, IL
LEO W. O'BRIEN, NY	GORDON L. MCDONOUGH, CA
LEE METCALF, MT	JAMES G. FULTON, PA
WILLIAM H. NATCHER, KY	KENNETH B. KEATING, NY
B. F. SISK, CA	GERALD R. FORD, JR., MI

86th Congress
Committee on Science and Astronautics

OVERTON BROOKS, LA, *Chair*

JOHN W. MCCORMACK, MA	JOSEPH W. MARTIN, JR., MA
GEORGE P. MILLER, CA	JAMES G. FULTON, PA
OLIN E. TEAGUE, TX	GORDON L. MCDONOUGH, CA
VICTOR L. ANFUSO, NY	J. EDGAR CHENOWETH, CO
B. F. SISK, CA	FRANK C. OSMERS, JR., NJ
ERWIN MITCHELL, GA	WILLIAM K. VAN PELT, WI
JAMES M. QUIGLEY, PA	A. D. BAUMHART, JR., OH
DAVID M. HALL, NC	PERKINS BASS, NH
LEONARD G. WOLF, IA	R. WALTER RIEHLMAN, NY
JOSEPH E. KARTH, MN	
KEN HECHLER, WV	
EMILIO Q. DADDARIO, CT	
WALTER H. MOELLER, OH	
DAVID S. KING, UT	
J. EDWARD ROUSH, IN	

87th Congress
Committee on Science and Astronautics

GEORGE P. MILLER, CA, *Chair*

OLIN E. TEAGUE, TX	JOSEPH W. MARTIN, JR., MA
VICTOR L. ANFUSO, NY	JAMES G. FULTON, PA
JOSEPH E. KARTH, MN	J. EDGAR CHENOWETH, CO
KEN HECHLER, WV	WILLIAM K. VAN PELT, WI
EMILIO Q. DADDARIO, CT	PERKINS BASS, NH
WALTER H. MOELLER, OH	R. WALTER RIEHLMAN, NY
DAVID S. KING, UT	JESSICA M. WEIS, NY
J. EDWARD ROUSH, IN	CHARLES A. MOSHER, OH
THOMAS G. MORRIS, NM	RICHARD L. ROUDEBUSH, IN
BOB CASEY, TX	ALPHONZO BELL, CA
WILLIAM J. RANDALL, MO	THOMAS M. PELLY, WA
JOHN W. DAVIS, GA	
WILLIAM F. RYAN, NY	
JAMES C. CORMAN, CA	
THOMAS N. DOWNING, VA	
JOE D. WAGGONNER, JR., LA	
CORINNE B. RILEY, SC	

Subcommittees

Manned Space Flight

DEM: TEAGUE, *Chair*, DADDARIO, MORRIS, RYAN

REP: FULTON, RIEHLMAN, ROUDEBUSH

Advanced Research and Technology

DEM: ANFUSO, *Chair*, MOELLER, KING, CORMAN

REP: CHENOWETH, MOSHER, BELL

Space Sciences

DEM: KARTH, *Chair*, CASEY, RANDALL, DOWNING

REP: VAN PELT, BASS

Applications and Tracking and Data Acquisition

DEM: HECHLER, *Chair*, ROUSH, DAVIS, WAGGONNER, JR.

REP: WEIS

Patents and Scientific Inventions

DEM: DADDARIO, *Chair*, KING, CASEY, RANDALL, RYAN

REP: FULTON, CHENOWETH, BASS, BELL

Women as Astronauts

DEM: ANFUSO, *Chair*, KARTH, ROUSH, RYAN, CORMAN, WAGGONNER, JR., RILEY

REP: FULTON, RIEHLMAN, WEIS, BELL

88th Congress
Committee on Science and Astronautics

GEORGE P. MILLER, CA, *Chair*

OLIN E. TEAGUE, TX	JOSEPH W. MARTIN, JR., MA
JOSEPH E. KARTH, MN	JAMES G. FULTON, PA
KEN HECHLER, WV	J. EDGAR CHENOWETH, CO
EMILIO Q. DADDARIO, CT	WILLIAM K. VAN PELT, WI
J. EDWARD ROUSH, IN	R. WALTER RIEHLMAN, NY
THOMAS G. MORRIS, NM	CHARLES A. MOSHER, OH
BOB CASEY, TX	RICHARD L. ROUDEBUSH, IN
WILLIAM J. RANDALL, MO	ALPHONZO BELL, CA
JOHN W. DAVIS, GA	THOMAS M. PELLY, WA
WILLIAM F. RYAN, NY	DONALD RUMSFELD, IL
THOMAS N. DOWNING, VA	JAMES D. WEAVER, PA
JOE D. WAGGONNER, JR., LA	EDWARD J. GURNEY, FL
EDWARD J. PATTEN, NJ	JOHN W. WYDLER, NY
RICHARD H. FULTON, TN	
DON FUQUA, FL	
NEIL STAEBLER, MI	
CARL ALBERT, OK	

Subcommittees

Manned Space Flight

DEM: TEAGUE, *Chair*, DADDARIO, CASEY, WAGGONNER, JR., PATTEN, FUQUA

REP: FULTON, RIEHLMAN, ROUDEBUSH, BELL, GURNEY

Space, Science, and Applications

DEM: KARTH, *Chair*, MORRIS, RANDALL, DOWNING, STAEBLER

REP: CHENOWETH, VAN PELT, MOSHER, WEAVER

Advanced Research and Technology

DEM: HECHLER, *Chair*, ROUSH, DAVIS, RYAN, FULTON

REP: PELLY, RUMSFELD, WYDLER

Science, Research, and Development

DEM: DADDARIO, *Chair*, ROUSH, MORRIS, DAVIS, WAGGONNER, JR., PATTEN

REP: RIEHLMAN, MOSHER, BELL, WEAVER

NASA Oversight

DEM: TEAGUE, *Chair*, KARTH, HECHLER, DADDARIO, CASEY, DOWNING, WAGGONNER, JR., PATTEN, FUQUA

REP: FULTON, RIEHLMAN, ROUDEBUSH, BELL, GURNEY

89th Congress
Committee on Science and Astronautics

GEORGE P. MILLER, CA, *Chair*

OLIN E. TEAGUE, TX	JOSEPH W. MARTIN, JR., MA
JOSEPH E. KARTH, MN	JAMES G. FULTON, PA
KEN HECHLER, WV	CHARLES A. MOSHER, OH
EMILIO Q. DADDARIO, CT	RICHARD L. ROUDEBUSH, IN
J. EDWARD ROUSH, IN	ALPHONZO BELL, CA
JOHN W. DAVIS, GA	THOMAS M. PELLY, WA
WILLIAM F. RYAN, NY	DONALD RUMSFELD, IL
THOMAS N. DOWNING, VA	EDWARD J. GURNEY, FL
JOE D. WAGGONNER, JR., LA	JOHN W. WYDLER, NY
DON FUQUA, FL	BARBER B. CONABLE, JR., NY
CARL ALBERT, OK	
ROY A. TAYLOR, NC	
GEORGE E. BROWN, JR., CA	
WALTER H. MOELLER, OH	
LESTER L. WOLFF, NY	
WESTON E. VIVIAN, MI	
GALE SCHISLER, IL	
WILLIAM J. GREEN, PA	
EARLE CABELL, TX	

Subcommittees

Manned Space Flight

DEM: TEAGUE, *Chair*, DADDARIO, WAGGONNER, JR., FUQUA, SCHISLER, GREEN, CABELL

REP: FULTON, ROUDEBUSH, BELL, GURNEY, RUMSFELD

Space, Science, and Applications

DEM: KARTH, *Chair*, DOWNING, TAYLOR, MOELLER, VIVIAN

REP: CONABLE, JR., MOSHER

Advanced Research and Technology

DEM: HECHLER, *Chair*, ROUSH, DAVIS, RYAN, BROWN, JR., WOLFF

REP: PELLY, WYDLER

Science, Research, and Development

DEM: DADDARIO, *Chair*, ROUSH, DAVIS, WAGGONNER, JR., BROWN, JR., VIVIAN

REP: MOSHER, BELL, CONABLE, JR.

NASA Oversight

DEM: TEAGUE, *Chair*, KARTH, HECHLER, DADDARIO, DOWNING, WAGGONNER, JR., FUQUA

REP: FULTON, ROUDEBUSH, BELL, GURNEY, WYDLER

90th Congress
Committee on Science and Astronautics

GEORGE P. MILLER, CA, *Chair*

OLIN E. TEAGUE, TX	JAMES G. FULTON, PA
JOSEPH E. KARTH, MN	CHARLES A. MOSHER, OH
KEN HECHLER, WV	RICHARD L. ROUDEBUSH, IN
EMILIO Q. DADDARIO, CT	ALPHONZO BELL, CA
J. EDWARD ROUSH, IN	THOMAS M. PELLY, WA
JOHN W. DAVIS, GA	DONALD RUMSFELD, IL
THOMAS N. DOWNING, VA	EDWARD J. GURNEY, FL
JOE D. WAGGONNER, JR., LA	JOHN W. WYDLER, NY
DON FUQUA, FL	GUY VANDER JAGT, MI
GEORGE E. BROWN, JR., CA	LARRY WINN, JR., KS
EARLE CABELL, TX	JERRY L. PETTIS, CA
JACK BRINKLEY, GA	D. E. (BUZ) LUKENS, OH
BOB ECKHARDT, TX	JOHN E. HUNT, NJ
ROBERT O. TIERNAN, RI	
BERTRAM L. PODELL, NY	

Subcommittees

Manned Space Flight

DEM: TEAGUE, *Chair*, DADDARIO, WAGGONNER, JR., FUQUA, CABELL, TIERNAN

REP: FULTON, ROUDEBUSH, BELL, GURNEY, RUMSFELD

Space, Science, and Applications

DEM: KARTH, *Chair*, DOWNING, BRINKLEY, ECKHARDT

REP: MOSHER, VANDER JAGT, WINN, JR., PETTIS

Advanced Research and Technology

DEM: HECHLER, *Chair*, ROUSH, DAVIS, BROWN, JR.

REP: PELLY, WYDLER, HUNT, LUKENS

Science, Research, and Development

DEM: DADDARIO, *Chair*, ROUSH, DAVIS, WAGGONNER, JR., BROWN, JR.

REP: BELL, MOSHER, RUMSFELD, LUKENS

NASA Oversight

DEM: TEAGUE, *Chair*, KARTH, HECHLER, DADDARIO, DOWNING, WAGGONNER, JR., FUQUA

REP: ROUDEBUSH, FULTON, GURNEY, WYDLER, VANDER JAGT

Bureau of Standards *ET AL*

DEM: ROUSH, *Chair*, DAVIS, BRINKLEY

REP: ROUDEBUSH, WINN, JR.

91st Congress
Committee on Science and Astronautics

GEORGE P. MILLER, CA, *Chair*

OLIN E. TEAGUE, TX	JAMES G. FULTON, PA
JOSEPH E. KARTH, MN	CHARLES A. MOSHER, OH
KEN HECHLER, WV	RICHARD L. ROUDEBUSH, IN
EMILIO Q. DADDARIO, CT	ALPHONZO BELL, CA
JOHN W. DAVIS, GA	THOMAS M. PELLY, WA
THOMAS N. DOWNING, VA	DONALD RUMSFELD, IL (1)
JOE D. WAGGONNER, JR., LA	JOHN W. WYDLER, NY
DON FUQUA, FL	GUY VANDER JAGT, MI
GEORGE E. BROWN, JR., CA	LARRY WINN, JR., KS
EARLE CABELL, TX	JERRY L. PETTIS, CA (3)
BERTRAM L. PODELL, NY (4)	DONALD E. LUKENS, OH
WAYNE N. ASPINALL, CO	ROBERT PRICE, TX
ROY A. TAYLOR, NC	LOWELL P. WEICKER, JR., CT
HENRY HELSTOSKI, NJ	LOUIS FREY, JR., FL
MARIO BIAGGI, NY	B. M. GOLDWATER, JR., CA (2)
JAMES W. SYMINGTON, MO	
EDWARD I. KOCH, NY	

(1) Resigned from the House of Representatives May 26, 1969.

(2) Elected to the Committee June 3, 1969.

(3) Resigned from the Committee April 30, 1970.

(4) Resigned from the Committee December 8, 1970.

Subcommittees

Manned Space Flight

DEM: TEAGUE, *Chair*, DADDARIO, WAGGONNER, JR., FUQUA, CABELL, ASPINALL

REP: FULTON, ROUDEBUSH, BELL, WINN, JR., PRICE, FREY, JR.

Space, Science, and Applications

DEM: KARTH, *Chair*, DOWNING, TAYLOR, SYMINGTON, KOCH

REP: MOSHER, VANDER JAGT, WEICKER, JR.

Advanced Research and Technology

DEM: HECHLER, *Chair*, DAVIS, BROWN, JR., HELSTOSKI, BIAGGI

REP: PELLY, WYDLER, LUKENS, GOLDWATER, JR.

Science, Research, and Development

DEM: DADDARIO, *Chair*, DAVIS, WAGGONNER, JR., BROWN, JR., CABELL, SYMINGTON

REP: BELL, MOSHER, LUKENS, WINN, JR.

NASA Oversight

DEM: TEAGUE, *Chair*, KARTH, HECHLER, DADDARIO, DOWNING, WAGGONNER, JR., FUQUA

REP: ROUDEBUSH, WYDLER, VANDER JAGT, PRICE, WEICKER, JR., FREY, JR.

The National Bureau of Standards

DEM: DAVIS, *Chair*, FUQUA, BROWN, JR.

REP: LUKENS, GOLDWATER, JR.

Ad Hoc Subcommittee to Consider H.R. 10771

DEM: TEAGUE, *Chair*, KARTH

REP: FULTON

92nd Congress
Committee on Science and Astronautics

GEORGE P. MILLER, CA, *Chair*

OLIN E. TEAGUE, TX	JAMES G. FULTON, PA (2)
JOSEPH E. KARTH, MN (3)	CHARLES A. MOSHER, OH
KEN HECHLER, WV	ALPHONZO BELL, CA
JOHN W. DAVIS, GA	THOMAS M. PELLY, WA
THOMAS N. DOWNING, VA	JOHN W. WYDLER, NY
DON FUQUA, FL	LARRY WINN, JR., KS
EARLE CABELL, TX	ROBERT PRICE, TX
JAMES W. SYMINGTON, MO	LOUIS FREY, JR., FL
RICHARD T. HANNA, CA	BARRY M. GOLDWATER, JR., CA
WALTER FLOWERS, AL	MARVIN L. ESCH, MI
ROBERT A. ROE, NJ	R. LAWRENCE COUGHLIN, PA
JOHN F. SEIBERLING, JR., OH	JOHN N. "HAPPY" CAMP, OK
WILLIAM R. COTTER, CT	
CHARLES B. RANGEL, NY	
MORGAN F. MURPHY, IL	
MIKE MCCORMACK, WA	
MENDEL J. DAVIS, SC (1)	
BOB BERGLAND, MN (4)	

(1) Elected to the Committee June 3, 1971.

(2) Died October 6, 1971.

(3) Resigned from the Committee October 6, 1971.

(4) Elected to the Committee October 1971.

Subcommittees

Manned Space Flight

DEM: TEAGUE, *Chair*, FUQUA, CABELL, HANNA, FLOWERS, ROE

REP: WINN, JR., BELL, WYDLER, PRICE, FREY, JR.

Aeronautics and Space Technology

DEM: HECHLER, *Chair*, DAVIS, COTTER, RANGEL, MCCORMACK

REP: PELLY, WYDLER, GOLDWATER, JR., ESCH

Science, Research, and Development

DEM: DOWNING, *Chair*, SYMINGTON, SEIBERLING, JR., MURPHY, DAVIS, BERGLAND

REP: PRICE, WINN, JR., GOLDWATER, JR., COUGHLIN, CAMP

NASA Oversight

DEM: FUQUA, *Chair*, TEAGUE, HECHLER, DOWNING, FLOWERS, RANGEL

REP: WYDLER, FREY, JR., CAMP

International Cooperation in Science and Space

DEM: SYMINGTON, *Chair*, J. DAVIS, ROE, COTTER, MURPHY, M. DAVIS

REP: FREY, JR., BELL, WINN, JR., PRICE, GOLDWATER, JR.

93rd Congress
Committee on Science and Technology

OLIN E. TEAGUE, TX, *Chair*

KEN HECHLER, WV	CHARLES A. MOSHER, OH
JOHN W. DAVIS, GA	ALPHONZO BELL, CA
THOMAS N. DOWNING, VA	JOHN W. WYDLER, NY
DON FUQUA, FL	LARRY WINN, JR., KS
JAMES W. SYMINGTON, MO	LOUIS FREY, JR., FL
RICHARD T. HANNA, CA	BARRY M. GOLDWATER, JR., CA
WALTER FLOWERS, AL	MARVIN L. ESCH, MI
ROBERT A. ROE, NJ	LAWRENCE COUGHLIN, PA (1)
WILLIAM R. COTTER, CT	JOHN N. "HAPPY" CAMP, OK
MIKE MCCORMACK, WA	JOHN B. CONLAN, AZ
BOB BERGLAND, MN	STANFORD F. PARRIS, VA
J. J. PICKLE, TX	PAUL W. CRONIN, MA
GEORGE E. BROWN, JR., CA	JAMES G. MARTIN, NC
DALE MILFORD, TX	WILLIAM M. KETCHUM, CA (2)
RAY THORNTON, JR., AR	
BILL GUNTER, JR., FL	

(1) Resigned from the Committee March 7, 1973.

(2) Elected to the Committee November 15, 1973.

Subcommittees

Aeronautics and Space Technology

DEM: HECHLER, *Chair*, DAVIS, COTTER, PICKLE, THORNTON, JR.

REP: WYDLER, CONLAN, GOLDWATER, JR., PARRIS

Science, Research, and Development

DEM: DAVIS, *Chair*, SYMINGTON, HANNA, MCCORMACK, FUQUA, FLOWERS, COTTER, PICKLE, BROWN, JR., THORNTON, JR.

REP: BELL, ESCH, CONLAN, PARRIS, CRONIN, MARTIN

Manned Space Flight

DEM: FUQUA, *Chair*, FLOWERS, ROE, COTTER, BERGLAND, GUNTER, JR.

REP: WINN, JR., BELL, WYDLER, FREY, JR., CAMP

Space, Science and Applications

DEM: SYMINGTON, *Chair*, DOWNING, BERGLAND, BROWN, JR., MILFORD

REP: ESCH, WINN, JR., GOLDWATER, JR., CAMP

International Cooperation in Science and Space

DEM: HANNA, *Chair*, SYMINGTON, DAVIS, ROE, MCCORMACK, MILFORD

REP: FREY, JR., BELL, WINN, JR., CAMP, KETCHUM

Energy

DEM: MCCORMACK, *Chair*, FUQUA, SYMINGTON, HANNA, ROE, BERGLAND, PICKLE, BROWN, JR., MILFORD, THORNTON, JR., GUNTER, JR.

REP: GOLDWATER, JR., WYDLER, ESCH, CONLAN, PARRIS, CRONIN, MARTIN, KETCHUM

94th Congress
Committee on Science and Technology

OLIN E. TEAGUE, TX, *Chair*

KEN HECHLER, WV	CHARLES A. MOSHER, OH
THOMAS N. DOWNING, VA	ALPHONZO BELL, CA
DON FUQUA, FL	JOHN JARMAN, OK
JAMES W. SYMINGTON, MO	JOHN W. WYDLER, NY
WALTER FLOWERS, AL	LARRY WINN, JR., KS
ROBERT A. ROE, NJ	LOUIS FREY, JR., FL
MIKE MCCORMACK, WA	BARRY M. GOLDWATER, JR., CA
BOB BERGLAND, MN (2)	MARVIN L. ESCH, MI
GEORGE E. BROWN, JR., CA	JOHN B. CONLAN, AZ
DALE MILFORD, TX	WILLIAM M. KETCHUM, CA (3)
RAY THORNTON, JR., AR	GARY A. MYERS, PA
JAMES H. SCHEUER, NY	DAVID F. EMERY, ME
RICHARD L. OTTINGER, NY	LARRY PRESSLER, SD (4)
HENRY A. WAXMAN, CA	
PHILIP H. HAYES, IN	
TOM HARKIN, IA	
JIM LLOYD, CA	
JEROME A. AMBRO, JR., NY	
CHRISTOPHER J. DODD, CT	
MICHAEL T. BLOUIN, IA	
TIM L. HALL, IL	
ROBERT (BOB) KRUEGER, TX	
MARILYN LLOYD, TN	
JAMES J. BLANCHARD, MI	
TIMOTHY E. WIRTH, CO (1)	

(1) Resigned from the February 19, 1975.

(2) Elected to the Committee February 19, 1975.

(3) Resigned from the Committee March 24, 1975.

(4) Elected to the Committee May 15, 1975.

94th Congress
Committee on Science and Technology

Subcommittees

Energy Research, Development, and Demonstration
(Fossil Fuels)

DEM: HECHLER, *Chair*, DOWNING, FLOWERS, MCCORMACK, THORNTON, JR., WAXMAN, HAYES, BLOUIN, KRUEGER, M. LLOYD, WIRTH
REP: BELL, MYERS, EMERY, PRESSLER

Space Science and Applications

DEM: FUQUA, *Chair*, DOWNING, SYMINGTON, FLOWERS, ROE, J. LLOYD, DODD, HALL, KRUEGER, M. LLOYD, WIRTH
REP: WINN, JR., WYDLER, FREY, JR., EMERY

Energy Research, Development, and Demonstration

DEM: MCCORMACK, *Chair*, HECHLER, FUQUA, SYMINGTON, BROWN, JR., THORNTON, JR., OTTINGER, WAXMAN, HAYES, HARKIN, AMBRO, JR., DODD, KRUEGER, M. LLOYD, BLANCHARD, WIRTH
REP: GOLDWATER, JR., BELL, WYDLER, WINN, JR., FREY, JR., ESCH, CONLAN

Environment and the Atmosphere

DEM: BROWN, JR., *Chair*, MCCORMACK, MILFORD, OTTINGER, HAYES, AMBRO, JR., BLANCHARD, SCHEUER
REP: ESCH, WINN, JR., MYERS, EMERY

Aviation and Transportation Research and Development

DEM: MILFORD, *Chair*, ROE, SCHEUER, HARKIN, J. LLOYD, HALL, OTTINGER
REP: WYDLER, GOLDWATER, JR., CONLAN

Domestic and International Scientific Planning and Analysis

DEM: THORNTON, JR., *Chair*, ROE, MILFORD, SCHEUER, WAXMAN, AMBRO, JR., BLANCHARD
REP: CONLAN, JARMAN, MYERS

95th Congress
Committee on Science and Technology

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ALBERT GORE, JR., TN	
WES WATKINS, OK	
RICHARD A. TONRY, LA (2)	
ROBERT A. YOUNG, III, MO (3)	

(1) Elected to the Committee March 3, 1977.

(2) Resigned from the Committee May 4, 1977.

(3) Elected to the Committee July 20, 1977.

95th Congress
Committee on Science and Technology

Subcommittees

Space, Science, and Applications

DEM: FUQUA, *Chair*, ROE, J. LLOYD, DOWNEY, FLIPPO, GAMMAGE, GORE, JR., WIRTH, WATKINS

REP: WINN, JR., FREY, JR., HOLLENBECK, RUDD

**Fossil and Nuclear Energy Research, Development,
and Demonstration**

DEM: FLOWERS, *Chair*, M. LLOYD, DOWNEY, WALGREN, GAMMAGE, WATKINS, MILFORD, THORNTON, JR., OTTINGER, KRUEGER, ROE, BROWN, JR., J. LLOYD, YOUNG, III, FLIPPO

REP: MYERS, FISH, JR., GOLDWATER, JR., LUJÁN, JR., HOLLENBECK, DORNAN, FORSYTHE, FREY, JR.

**Advanced Energy Technology and Energy Conservation Research,
Development, and Demonstration**

DEM: MCCORMACK, *Chair*, OTTINGER, HARKIN, AMBRO, JR., KRUEGER, BLANCHARD, NEAL, FLIPPO, GLICKMAN, BEILENSON, GORE, JR., FLOWERS, BROWN, JR., M. LLOYD, WIRTH, WATKINS, THORNTON, JR., YOUNG, III

REP: GOLDWATER, JR., DORNAN, WINN, JR., MYERS, FISH, JR., PURSELL, RUDD, WALKER

Environment and the Atmosphere

DEM: BROWN, JR., *Chair*, WIRTH, AMBRO, JR., WALGREN, BEILENSON, HARKIN, WATKINS

REP: WALKER, WINN, JR., FORSYTHE

Transportation, Aviation, and Weather

DEM: MILFORD, *Chair*, J. LLOYD, ROE, GLICKMAN, AMBRO, JR., FUQUA, YOUNG, III

REP: WYDLER, RUDD, GOLDWATER, JR.

Science, Research, and Technology

DEM: THORNTON, JR., *Chair*, FUQUA, HARKIN, KRUEGER, FLIPPO, MCCORMACK, BROWN, JR.

REP: HOLLENBECK, DORNAN, LUJÁN, JR.

**Domestic and International Scientific Planning,
Analysis, and Cooperation**

DEM: SCHEUER, *Chair*, BLANCHARD, NEAL, BEILENSON, GLICKMAN, GORE, JR., MILFORD

REP: PURSELL, WALKER, FORSYTHE

96th Congress
Committee on Science and Technology

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BERYL ANTHONY, JR., AR	
STANLEY N. LUNDINE, NY (1)	
ALLEN E. ERTEL, PA (1)	
KENT HANCE, TX (1)	

(1) Elected to the Committee January 31, 1979.

(2) Resigned from the Committee January 31, 1979.

(3) Elected to the Committee June 27, 1979.

96th Congress
Committee on Science and Technology

Subcommittees

Space Science and Applications

DEM: FUQUA, *Chair*, FLIPPO, WATKINS, BOUQUARD, NELSON, BROWN, JR.
REP: WINN, JR., DORNAN, KRAMER

Energy Research and Production

DEM: MCCORMACK, *Chair*, BOUQUARD, ROE, LUNDINE,
YOUNG, III, WHITE, WOLPE, III, FLIPPO, MAVROULES, OTTINGER,
ANTHONY, JR.
REP: FORSYTHE, ROTH, GOLDWATER, JR., LUJÁN, JR., HOLLENBECK

Science, Research, and Technology

DEM: BROWN, JR., *Chair*, SCHEUER, PEASE, HARKIN, ERTTEL, HANCE,
WATKINS
REP: HOLLENBECK, DAVIS, RITTER

Energy Development and Applications

DEM: OTTINGER, *Chair*, BLANCHARD, WALGREN, GLICKMAN, GORE, JR.,
YOUNG, III, WHITE, VOLKMER, WOLPE, III, MAVROULES, NELSON,
ANTHONY, JR., ERTTEL, HANCE, ROE, MCCORMACK
REP: FISH, JR., KRAMER, CARNEY, RITTER, DAVIS, DORNAN, WALKER,
ROYER

Transportation, Aviation, and Communication

DEM: HARKIN, *Chair*, LLOYD, WALGREN, GLICKMAN, MAVROULES,
VOLKMER
REP: GOLDWATER, JR., DORNAN, ROYER

Investigations and Oversight

DEM: LLOYD, *Chair*, AMBRO, JR., FLIPPO, GORE, JR., NELSON
REP: LUJÁN, JR., CARNEY, ROTH

Natural Resources and Environment

DEM: AMBRO, JR., *Chair*, BROWN, JR., BLANCHARD, WATKINS, LUNDINE,
REP: WALKER, RITTER, FORSYTHE

97th Congress
Committee on Science and Technology

DON FUQUA, FL, *Chair*

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97th Congress
Committee on Science and Technology

Subcommittees

Energy Development and Applications

DEM: FUQUA, *Chair*, HARKIN, BLANCHARD, WHITE, VOLKMER, WOLPE, III, NELSON, ERTTEL, MCCURDY, ROE, SCHEUER, OTTINGER, BOUQUARD, YOUNG, III

REP: FISH, JR., SENSENBRENNER, JR., WEBER, GREGG, SKEEN, SCHNEIDER, MCGRATH, DUNN, WALKER

Natural Resources, Agriculture Research, and Environment

DEM: SCHEUER, *Chair*, BROWN, JR., BLANCHARD, WALGREN, WHITE

REP: CARNEY, SENSENBRENNER, JR., SCHNEIDER

Energy Research and Production

DEM: BOUQUARD, *Chair*, ROE, OTTINGER, YOUNG, III, LUNDINE, FLIPPO, VOLKMER, WOLPE, III

REP: LUJÁN, JR., FORSYTHE, LOWERY, GOLDWATER, JR., HOLLENBECK

Science, Research, and Technology

DEM: WALGREN, *Chair*, BROWN, JR., SHAMANSKY, DYMALLY, LUNDINE, ERTTEL, HALL, MCCURDY

REP: HECKLER, WEBER, GREGG, SKEEN, FORSYTHE

Space, Science, and Applications

DEM: FLIPPO, *Chair*, NELSON, BROWN, JR., BOUQUARD, HALL

REP: HOLLENBECK, MCGRATH, LOWERY

Transportation, Aviation, and Materials

DEM: GLICKMAN, *Chair*, HALL, HARKIN, SHAMANSKY, DYMALLY, FLIPPO

REP: GOLDWATER, JR., DUNN, HOLLENBECK, CARNEY

Investigations and Oversight

DEM: GORE, JR., *Chair*, SHAMANSKY, VOLKMER

REP: WALKER, LUJÁN, JR.

98th Congress
Committee on Science and Technology

DON FUQUA, FL, *Chair*

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GEORGE E. BROWN, JR., CA	MANUEL LUJÁN, JR., NM
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FREDERICK C. BOUCHER, VA	

98th Congress
Committee on Science and Technology

Subcommittees

Energy Development and Applications

DEM: FUQUA, *Chair*, OTTINGER, HARKIN, HALL, SIMON, DURBIN, BOUCHER,
ROE, SCHEUER, BOUQUARD, YOUNG, III, NELSON, MCCURDY, MINETA
REP: SENSENBRENNER, JR., SCHNEIDER, LOWERY, BATEMAN, LEWIS,
CARNEY, GREGG

Natural Resources, Agriculture Research, and Environment

DEM: SCHEUER, *Chair*, VALENTINE, JR., HARKIN, ANDREWS, MACKAY,
TORRICELLI, BROWN, JR.
REP: MCGRATH, SCHNEIDER, CHANDLER, LEWIS

Energy Research and Production

DEM: BOUQUARD, *Chair*, ROE, YOUNG, III, LUNDINE, OTTINGER, HALL,
VALENTINE, JR.
REP: WALKER, CHANDLER, LUJÁN, JR., LOWERY

Science, Research, and Technology

DEM: WALGREN, *Chair*, BROWN, JR., MCCURDY, DYMALLY, MINETA,
MACKAY, TORRICELLI, LUNDINE, SIMON, DURBIN, VALENTINE, JR., REID,
BOUCHER
REP: GREGG, BOEHLERT, SENSENBRENNER, JR., MCGRATH, SKEEN,
BATEMAN

Transportation, Aviation, and Materials

DEM: GLICKMAN, *Chair*, GORE, JR., DYMALLY, OTTINGER, HARKIN,
ANDREWS
REP: CARNEY, BOEHLERT, MCCANDLESS

Investigations and Oversight

DEM: GORE, JR., *Chair*, REID, VOLKMER, ROE, DURBIN, SCHEUER
REP: SKEEN, MCCANDLESS, SCHNEIDER

Space Science and Applications

DEM: VOLKMER, *Chair*, NELSON, ANDREWS, BROWN, JR., HALL, DYMALLY,
MINETA, MACKAY, TORRICELLI
REP: LUJÁN, JR., LOWERY, CHANDLER, BATEMAN, WALKER

99th Congress
Committee on Science and Technology

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HAROLD L. VOLKMER, MO	RON PACKARD, CA
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STAN LUNDINE, NY	ROBERT C. SMITH, NH
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RICK BOUCHER, VA	
TERRY BRUCE, IL	
RICHARD H. STALLINGS, ID	
BART GORDON, TN	
JAMES A. TRAFICANT, JR., OH	
JIM CHAPMAN, TX (1)	

(1) Elected to the Committee July 29, 1986.

(2) Resigned from the Committee July 29, 1986.

99th Congress
Committee on Science and Technology

Subcommittees

Energy Development and Applications

DEM: FUQUA, *Chair*, ROE, HALL, BOUCHER, BRUCE, TRAFICANT, JR.,
WALGREN, YOUNG, III, MCCURDY, STALLINGS
REP: SENSENBRENNER, JR., SCHNEIDER, PACKARD, FAWELL, COBEY, JR.,
BARTON, SLAUGHTER, JR.

Transportation, Aviation, and Materials

DEM: BROWN, JR., *Chair*, GLICKMAN, REID, NELSON, GORDON
REP: LEWIS, BOEHLERT, PACKARD

Natural Resources, Agriculture Research, and Environment

DEM: SCHEUER, *Chair*, WIRTH, VALENTINE, JR., MCCURDY, REID,
TORRICELLI, ANDREWS, CHAPMAN
REP: SCHNEIDER, RITTER, MEYERS, SMITH, HENRY

Energy Research and Production

DEM: LLOYD, *Chair*, YOUNG, III, STALLINGS, ROE, LUNDINE, VALENTINE,
JR.
REP: MORRISON, FAWELL, BARTON, MONSON

Science, Research, and Technology

DEM: WALGREN, *Chair*, LUNDINE, MINETA, BROWN, JR., WIRTH, BRUCE,
VALENTINE, JR.
REP: BOEHLERT, RITTER, HENRY, COBEY, JR.

Investigation and Oversight

DEM: VOLKMER, *Chair*, ANDREWS, TRAFICANT, JR., REID, BROWN, JR.,
CHAPMAN
REP: PACKARD, SENSENBRENNER, JR., MORRISON

Space Science and Applications

DEM: NELSON, *Chair*, BROWN, JR., ANDREWS, TORRICELLI, GORDON,
SCHEUER, VOLKMER, MINETA, HALL, CHAPMAN
REP: WALKER, MEYERS, SMITH, BARTON, SLAUGHTER, JR., MONSON

Science Policy Task Force

DEM: FUQUA, *Chair*, ROE, BROWN, JR., WIRTH, WALGREN, VOLKMER,
LUNDINE, MINETA, REID, BOUCHER, STALLINGS
REP: LUJÁN, JR., WALKER, LEWIS, RITTER, MORRISON, PACKARD, MEYERS,
FAWELL, SLAUGHTER, JR.

100th Congress
Committee on Science, Space, and Technology

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RICK BOUCHER, VA	LAMAR SMITH, TX
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RICHARD H. STALLINGS, ID	JACK BUECHNER, MO
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JAMES A. TRAFICANT, JR., OH	CONSTANCE A. MORELLA, MD
JIM CHAPMAN, TX	CHRISTOPHER SHAYS, CT (3)
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HENRY J. NOWAK, NY	
CARL C. PERKINS, KY	
C. THOMAS MCMILLEN, MD	
DAVID E. PRICE, NC	
DAVID R. NAGLE, IA	
JIMMY HAYES, LA	
DAVID E. SKAGGS, CO (2)	
PAUL E. KANJORSKI, PA (4)	
GEORGE J. HOCHBRUECKNER, NY (4)	

(1) Resigned from the Committee February 19, 1987.

(2) Elected to the Committee March 30, 1987.

(3) Elected to the Committee November 4, 1987.

(4) Elected to the Committee December 15, 1987.

100th Congress
Committee on Science, Space, and Technology

Subcommittees

Investigations and Oversight

DEM: ROE, *Chair*, VOLKMER, PRICE, BROWN, JR., TRAFICANT, JR.,

REP: RITTER, SENSENBRENNER, JR., PACKARD, KONNYU

Natural Resources, Agriculture Research, and Environment

DEM: SCHEUER, *Chair*, VALENTINE, JR., MCCURDY, NOWAK, MCMILLEN, BROWN, JR.

REP: SCHNEIDER, SMITH, HENRY, HEFLEY

Subcommittee on Energy Research and Development

DEM: LLOYD, *Chair*, BOUCHER, BRUCE, STALLINGS, WALGREN, VALENTINE, JR., TRAFICANT, JR.

REP: MORRISON, FAWELL, SMITH, KONNYU, HEFLEY

Science, Research, and Technology

DEM: WALGREN, *Chair*, MACKAY, HAMILTON, NOWAK, PRICE, BROWN, JR., MINETA, BRUCE, PERKINS, NAGLE, HAYES, VALENTINE, JR., CHAPMAN, SKAGGS

REP: BOEHLERT, HENRY, SCHNEIDER, RITTER, MORRISON, SLAUGHTER, JR., SMITH, BUECHNER, MORELLA

Space Science and Applications

DEM: NELSON, *Chair*, BROWN, JR., VOLKMER, MINETA, TORRICELLI, TRAFICANT, JR., CHAPMAN, PERKINS, MCMILLEN, NAGLE, HAYES, SCHEUER, HALL, MACKAY, SKAGGS

REP: WALKER, PACKARD, SMITH, SLAUGHTER, JR., KONNYU, BUECHNER, PERKINS, HEFLEY, MORELLA, LEWIS

International Scientific Cooperation

DEM: HALL, *Chair*, LLOYD, MACKAY, TORRICELLI, STALLINGS, SCHEUER

REP: SENSENBRENNER, JR., BOEHLERT, PACKARD, FAWELL

Transportation, Aviation, and Materials

DEM: MCCURDY, *Chair*, GLICKMAN, NELSON, MCMILLEN, HAYES

REP: LEWIS, WALKER, SENSENBRENNER, JR.

Technology Policy Task Force

DEM: MACKAY, *Chair*, BROWN, JR., WALGREN, VALENTINE, JR., MCMILLEN, PRICE, NAGLE, HAYES, SKAGGS, MINETA

REP: PACKARD, SCHNEIDER, LEWIS, HENRY, FAWELL, MORELLA

101st Congress
Committee on Science, Space, and Technology

ROBERT A. ROE, NJ, *Chair*

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DOUG WALGREN, PA	SHERWOOD L. BOEHLERT, NY
DAN GLICKMAN, KS	TOM LEWIS, FL
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TERRY L. BRUCE, IL	CONSTANCE A. MORELLA, MD
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JERRY F. COSTELLO, IL	
HARRY JOHNSTON, II, FL	
JOHN TANNER, TN	
GLEN BROWDER, AL (1)	

(1) Elected to the Committee April 27, 1989.

(2) Resigned from the Committee March 7, 1990.

(3) Elected to the Committee March 7, 1990.

101st Congress
Committee on Science, Space, and Technology

Subcommittees

Investigations and Oversight

DEM: ROE, *Chair*, TANNER, HAYES, BRUCE, JOHNSON

REP: RITTER, BOEHLERT

Natural Resources, Agriculture Research, and Environment

DEM: SCHEUER, *Chair*, NOWAK, TANNER, BROWN, JR., WOLPE, III, MCCURDY, VALENTINE, JR., MCMILLEN, PRICE, SKAGGS

REP: SCHNEIDER, MORRISON, SHAYS, R. SMITH, HENRY, L. SMITH, MORELLA

Energy Research and Development

DEM: LLOYD, *Chair*, BOUCHER, BRUCE, COSTELLO, WALGREN, STALLINGS, TRAFICANT, JR., WOLPE, III, VALENTINE, JR.

REP: MORRISON, FAWELL, SCHIFF, L. SMITH, BUECHNER

Space Science and Applications

DEM: NELSON, *Chair*, VOLKMER, MINETA, TORRICELLI, STALLINGS, TRAFICANT, JR., PERKINS, MCMILLEN, NAGLE, HAYES, SKAGGS, JOHNSTON, II, SCHEUER, LLOYD, HALL, BROWDER

REP: SENSENBRENNER, JR., LEWIS, PACKARD, R. SMITH, SLAUGHTER, JR., L. SMITH, BUECHNER, ROHRABACHER, MORELLA, SCHIFF, HENRY, RHODES, III

International Scientific Cooperation

DEM: HALL, *Chair*, TORRICELLI, HAMILTON, BROWN, JR., SCHEUER

REP: PACKARD, SENSENBRENNER, JR., FAWELL

Science, Research, and Technology

DEM: VALENTINE, JR., WALGREN *Chairs*, BROWN, JR., WOLPE, III, HAMILTON, PRICE, MINETA, BRUCE, NAGLE, SKAGGS, COSTELLO, JOHNSTON, II, HAYES, BROWDER

REP: BOEHLERT, SCHNEIDER, RITTER, HENRY, MORELLA, CAMPBELL, SLAUGHTER, JR., BUECHNER, RHODES, III

Transportation, Aviation, and Materials

DEM: TORRICELLI, VALENTINE, JR., *Chairs*, GLICKMAN, MCCURDY, NELSON, MCMILLEN, BROWN, JR.

REP: LEWIS, SHAYS, ROHRABACHER, CAMPBELL

102nd Congress
Committee on Science, Space, and Technology

GEORGE E. BROWN, JR., CA, *Chair*

JAMES H. SCHEUER, NY	ROBERT S. WALKER, PA
MARILYN LLOYD, TN	F. J. SENSENBRENNER, JR., WI
DAN GLICKMAN, KS	SHERWOOD L. BOEHLERT, NY
HAROLD L. VOLKMER, MO	TOM LEWIS, FL
HOWARD WOLPE, III, MI	DON RITTER, PA
RALPH M. HALL, TX	SID MORRISON, WA
DAVE MCCURDY, OK	RON PACKARD, CA
NORMAN Y. MINETA, CA	PAUL B. HENRY, MI
TIM VALENTINE, JR., NC	HARRIS W. FAWELL, IL
ROBERT G. TORRICELLI, NJ	D. F. SLAUGHTER, JR., VA (4)
RICK BOUCHER, VA	LAMAR SMITH, TX
TERRY L. BRUCE, IL	CONSTANCE A. MORELLA, MD
RICHARD H. STALLINGS, ID	DANA ROHRABACHER, CA
JAMES A. TRAFICANT, JR., OH	STEVEN H. SCHIFF, NM
HENRY J. NOWAK, NY	TOM CAMPBELL, CA
CARL C. PERKINS, KY	JOHN J. RHODES, III, AZ
TOM MCMILLEN, MD	JOE BARTON, TX
DAVID R. NAGLE, IA	DICK ZIMMER, NJ
JIMMY HAYES, LA	WAYNE T. GILCHREST, MD
JERRY F. COSTELLO, IL	SAM JOHNSON, TX (3)
JOHN TANNER, TN	GEORGE ALLEN, VA (5)
GLEN BROWDER, AL	
PETE GEREN, TX	
RAY THORNTON, JR., AR	
JIM BACCHUS, FL	
TIM ROEMER, IN	
ROBERT E. "BUD" CRAMER, JR., AL	
DICK SWETT, NH	
MICHAEL J. KOPETSKI, OR	
JOAN KELLY HORN, MO	
BARBARA-ROSE COLLINS, MI (1)	
ELIOT L. ENGEL, NY (2)	
JOHN W. OLVER, MA (2)	

(1) Resigned from the Committee May 10, 1991.

(2) Elected to the Committee June 27, 1991.

(3) Elected to the Committee September 19, 1991.

(4) Resigned from the Committee November 5, 1991.

(5) Elected to the Committee November 12, 1991.

102nd Congress
Committee on Science, Space, and Technology

Subcommittees

Environment

DEM: SCHEUER, *Chair*, NOWAK, SWETT, WOLPE, III, KOPETSKI, HORN,
HALL, MCMILLEN, OLVER

REP: RITTER, MORRISON, MORELLA, ZIMMER

Energy

DEM: LLOYD, *Chair*, COSTELLO, HALL, BRUCE, STALLINGS, TRAFICANT, JR.,
CRAMER, JR., WOLPE, III, ROEMER

REP: MORRISON, FAWELL, SMITH, SCHIFF, BARTON

Investigations and Oversight

DEM: WOLPE, III, *Chair*, GEREN, NAGLE, TANNER, THORNTON, JR.

REP: BOEHLERT, SENSENBRENNER, JR.

Space

DEM: HALL, *Chair*, VOLKMER, STALLINGS, TRAFICANT, JR., PERKINS,
MCMILLEN, NAGLE, HAYES, TANNER, BROWDER, GEREN, BACCHUS,
CRAMER, JR., SCHEUER, MINETA, TORRICELLI, ENGEL

REP: SENSENBRENNER, JR., LEWIS, PACKARD, RHODES, III, HENRY,
SLAUGHTER, JR., SMITH, ROHRABACHER, ZIMMER, JOHNSON

Technology and Competitiveness

DEM: VALENTINE, JR., *Chair*, GLICKMAN, MINETA, TORRICELLI,
THORNTON, JR., ROEMER, HORN, COLLINS, BOUCHER, TANNER, BACCHUS,
SWETT, ENGEL, OLVER

REP: LEWIS, RITTER, HENRY, ROHRABACHER, CAMPBELL, GILCHREST,
MORELLA

Science

DEM: BOUCHER, *Chair*, BRUCE, KOPETSKI, VALENTINE, JR., PERKINS,
NAGLE, HAYES, COSTELLO, BROWDER, THORNTON, JR., ROEMER, COLLINS,
BACCHUS

REP: PACKARD, BOEHLERT, SLAUGHTER, JR., FAWELL, SCHIFF, CAMPBELL,
GILCHREST, ALLEN

103rd Congress
Committee on Science, Space, and Technology

GEORGE E. BROWN, JR., CA, *Chair*

MARILYN LLOYD, TN	ROBERT S. WALKER, PA
DAN GLICKMAN, KS	F. J. SENSENBRENNER, JR., WI
HAROLD L. VOLKMER, MO	SHERWOOD L. BOEHLERT, NY
RALPH M. HALL, TX	TOM LEWIS, FL
DAVE MCCURDY, OK	PAUL HENRY, MI (3)
TIM VALENTINE, JR., NC	HARRIS W. FAWELL, IL
ROBERT G. TORRICELLI, NJ	CONSTANCE A. MORELLA, MD
RICK BOUCHER, VA	DANA ROHRABACHER, CA
JAMES A. TRAFICANT, JR., OH	STEVEN H. SCHIFF, NM
JAMES A. HAYES, LA	JOE BARTON, TX
JOHN S. TANNER, TN	DICK ZIMMER, NJ
GLEN BROWDER, AL (1)	SAM JOHNSON, TX
PETE GEREN, TX	KEN CALVERT, CA
JIM BACCHUS, FL	MARTIN R. HOKE, OH
TIM ROEMER, IN	NICK SMITH, MI
ROBERT "BUD" CRAMER, JR., AL	EDWARD R. ROYCE, CA
DICK SWETT, NH	ROD GRAMS, MN
JAMES A. BARCIA, MI	JOHN LINDER, GA
HERBERT C. KLEIN, NJ	PETER BLUTE, MA
ERIC FINGERHUT, OH	JENNIFER DUNN, WA
PAUL MCHALE, JR., PA	BILL BAKER, CA
JANE HARMAN, CA	ROSCOE G. BARTLETT, MD
DON JOHNSON, JR., GA	VERNON J. EHLERS, MI (5)
SAM COPPERSMITH, AZ	
ANNA G. ESHOO, CA	
JAY INSLEE, WA	
EDDIE BERNICE JOHNSON, TX	
DAVID MINGE, MN	
LYNN C. WOOLSEY, CA (1)	
NATHAN DEAL, GA	
ROBERT C. SCOTT, VA	
XAVIER BECERRA, CA	
PETER W. BARCA, WI (2)	
BOBBY L. RUSH, IL (4)	

(1) Leave of absence from the Committee to serve on the Committee on the Budget March 3, 1993.

(2) Appointed to the Committee June 23, 1993.

(3) Died July 31, 1993.

(4) Appointed to the Committee November 10, 1993.

(5) Appointed to the Committee February 2, 1994.

103rd Congress
Committee on Science, Space, and Technology

Subcommittees

Energy

DEM: LLOYD, *Chair*, SCOTT, CRAMER, JR., SWETT, KLEIN, MCHALE, JR.,
COPPERSMITH, INSLEE, ROEMER, MCCURDY
REP: FAWELL, SCHIFF, BAKER, GRAMS, BARTLETT

Space

DEM: HALL, *Chair*, VOLKMER, TORRICELLI, TRAFICANT, JR., BACCHUS,
CRAMER, JR., BARCIA, FINGERHUT, HAYES, TANNER, GEREN, ROEMER,
HARMAN, ESHOO, MCCURDY,
REP: SENSENBRENNER, JR., ROHRABACHER, ZIMMER, JOHNSON, HOKE,
ROYCE, DUNN, SCHIFF, CALVERT

Technology, Environment, and Aviation

DEM: VALENTINE, JR., *Chair*, GLICKMAN, GEREN, ROEMER, SWETT, KLEIN,
MCHALE, JR., HARMAN, D. JOHNSON, JR., COPPERSMITH, ESHOO, INSLEE, E.
B. JOHNSON, MINGE, DEAL, BECERRA, TORRICELLI, BACCHUS, BARCA
REP: LEWIS, MORELLA, CALVERT, SMITH, GRAMS, LINDER, BLUTE,
BARTLETT, ROHRABACHER, ZIMMER, HOKE, ROYCE

Science

DEM: BOUCHER, *Chair*, HALL, VALENTINE, JR., BARCIA, ESHOO, E. B.
JOHNSON, MINGE, BARCA
REP: BOEHLERT, BARTON, JOHNSON, SMITH, BLUTE

Investigations and Oversight

DEM: HAYES, *Chair*, TANNER, LLOYD, D. JOHNSON, JR., COPPERSMITH,
REP: MORELLA, BARTON

104th Congress
Committee on Science

ROBERT S. WALKER, PA, *Chair*

F. J. SENSENBRENNER, JR., WI	GEORGE E. BROWN, JR., CA
SHERWOOD L. BOEHLERT, NY	HAROLD L. VOLKMER, MO (3)
HARRIS W. FAWELL, IL	RALPH M. HALL, TX
CONSTANCE A. MORELLA, MD	BART GORDON, TN (3)
CURT WELDON, PA	JAMES A. TRAFICANT, JR., OH
DANA ROHRABACHER, CA	JAMES A. HAYES, LA (2)
STEVEN H. SCHIFF, NM	JOHN S. TANNER, TN
JOE BARTON, TX	PETE GEREN, TX (1)
KEN CALVERT, CA	TIM ROEMER, IN
BILL BAKER, CA	ROBERT (BUD) CRAMER, JR., AL
ROSCOE G. BARTLETT, MD	JAMES A. BARCIA, MI
VERNON J. EHLERS, MI	PAUL MCHALE, JR., PA
ZACH WAMP, TN	JANE HARMAN, CA
DAVE WELDON, FL	EDDIE BERNICE JOHNSON, TX
LINDSEY O. GRAHAM, SC	DAVID MINGE, MN
MATT SALMON, AZ	JOHN W. OLVER, MA
THOMAS M. DAVIS, III, VA	ALCEE L. HASTINGS, FL
STEVE STOCKMAN, TX	LYNN N. RIVERS, MI
GIL GUTKNECHT, MN	KAREN MCCARTHY, MO
ANDREA SEASTRAND, CA	MIKE WARD, KY
TODD TIAHRT, KS	ZOE LOFGREN, CA
STEVE LARGENT, OK	LLOYD DOGGETT, II, TX
VAN HILLEARY, TN	MICHAEL F. DOYLE, PA
BARBARA CUBIN, WY	SHEILA JACKSON-LEE, TX
MARK ADAM FOLEY, FL	WILLIAM P. LUTHER, MN
SUE MYRICK, NC	

(1) Resigned from the Committee November 20, 1995.

(2) Resigned from the Committee December 12, 1995.

(3) Designate to the Committee and seniority ranking February 28, 1996.

104th Congress
Committee on Science

Subcommittees

Basic Research

REP: SCHIFF, *Chair*, BOEHLERT, BARTON, BAKER, EHLERS, GUTKNECHT, MORELLA, C. WELDON, BARTLETT, D. WELDON, GRAHAM, HILLEARY, MYRICK

DEM: CRAMER, JR., HASTINGS, RIVERS, DOGGETT, II, LUTHER, OLVER, LOFGREN, DOYLE, JACKSON-LEE, VOLKMER, GORDON

Energy and Environment

REP: ROHRABACHER, *Chair*, FAWELL, C. WELDON, BARTLETT, GRAHAM, SALMON, DAVIS, III, LARGENT, CUBIN, FOLEY, SCHIFF, BAKER, STOCKMAN

DEM: ROEMER, MINGE, OLVER, DOYLE, BARCIA, MCHALE, JR., JOHNSON, RIVERS, MCCARTHY, VOLKMER, JACKSON-LEE

Space and Aeronautics

REP: SENSENBRENNER, JR., *Chair*, CALVERT, D. WELDON, STOCKMAN, SEASTRAND, TIAHRT, HILLEARY, ROHRABACHER, SALMON, DAVIS, III, LARGENT, FOLEY

DEM: HALL, TRAFICANT, JR., ROEMER, CRAMER, JR., BARCIA, HARMAN, JACKSON-LEE, HASTINGS, LUTHER

Technology

REP: MORELLA, *Chair*, MYRICK, CALVERT, GUTKNECHT, SEASTRAND, TIAHRT, CUBIN

DEM: TANNER, MCHALE, JR., JOHNSON, MCCARTHY, LOFGREN

105th Congress

Committee on Science

F. JAMES SENSENBRENNER, JR., WI, *Chair*

SHERWOOD L. BOEHLERT, NY	GEORGE E. BROWN, JR., CA
HARRIS W. FAWELL, IL	RALPH M. HALL, TX
CONSTANCE A. MORELLA, MD	BART GORDON, TN
CURT WELDON, PA	JAMES A. TRAFICANT, JR., OH
DANA ROHRABACHER, CA	TIM ROEMER, IN
STEVEN SCHIFF, NM (6)	ROBERT CRAMER, JR., AL (5)
JOE BARTON, TX	JAMES A. BARCIA, MI
KEN CALVERT, CA	PAUL MCHALE, JR., PA (9)
ROSCOE G. BARTLETT, MD	EDDIE BERNICE JOHNSON, TX
VERNON J. EHLERS, MI	ALCEE L. HASTINGS, FL
DAVE WELDON, FL	LYNN N. RIVERS, MI
MATT SALMON, AZ	ZOE LOFGREN, CA
THOMAS M. DAVIS, III, VA	LLOYD DOGGETT, II, TX (2)
GIL GUTKNECHT, MN	MICHAEL F. DOYLE, PA
MARK FOLEY, FL	SHEILA JACKSON-LEE, TX
THOMAS W. EWING, IL	BILL LUTHER, MN
CHARLES PICKERING, JR., MS	WALTER H. CAPPS, CA (4)
CHRIS CANNON, UT	DEBBIE STABENOW, MI
KEVIN BRADY, TX	BOB ETHERIDGE, NC
MERRILL COOK, UT	NICK LAMPSON, TX
PHIL ENGLISH, PA (1)	DARLENE HOOLEY, OR
G. NETHERCUTT, JR., WA (1)	ELLEN O. TAUSCHER, CA (3) (10)
TOM A. COBURN, OK (1)	LOIS CAPPS, CA (7)
PETE SESSIONS, TX (1)	BARBARA LEE, CA (8)
	BRAD SHERMAN, CA (11)

- (1) Elected to the Committee March 5, 1997.
- (2) Resigned from the Committee April 17, 1997.
- (3) Appointed to the Committee April 17, 1997.
- (4) Died October 28, 1997.
- (5) Resigned from the Committee November 7, 1997.
- (6) Died March 25, 1998.
- (7) Elected to the Committee March 27, 1998.
- (8) Elected to the Committee April 29, 1998.
- (9) Resigned from the Committee May 5, 1988.
- (10) Resigned from the Committee June 24, 1998.
- (11) Elected to the Committee September 16, 1998.

105th Congress

Committee on Science

Subcommittees

Basic Research

REP: PICKERING, JR., *Acting Chair*, BOEHLERT, MORELLA, BARTON, GUTKNECHT, EWING, SESSIONS

DEM: JOHNSON, BARCIA, ETHERIDGE, RIVERS, JACKSON-LEE, LUTHER

Energy and Environment

REP: CALVERT, *Chair*, FAWELL, C. WELDON, ROHRABACHER, EHLERS, SALMON, FOLEY, ENGLISH, COBURN

DEM: ROEMER, DOYLE, HOOLEY, JACKSON-LEE, HALL, HASTINGS, LAMPSON

Space and Aeronautics

REP: ROHRABACHER, *Chair*, BARTON, CALVERT, BARTLETT, D. WELDON, SALMON, DAVIS, III, FOLEY, PICKERING, JR., CANNON, BRADY, COOK, NETHERCUTT, JR.

DEM: GORDON, HALL, TRAFICANT, JR., HASTINGS, LOFGREN, JACKSON-LEE, LUTHER, LAMPSON, CAPPS, ROEMER

Technology

REP: MORELLA, *Chair*, C. WELDON, BARTLETT, EHLERS, DAVIS, III, GUTKNECHT, EWING, CANNON, BRADY, COOK

DEM: BARCIA, GORDON, JOHNSON, RIVERS, STABENOW, DOYLE, ETHERIDGE

106th Congress
Committee on Science

F. JAMES SENSENBRENNER, JR., WI, *Chair*

SHERWOOD L. BOEHLERT, NY	GEORGE E. BROWN, JR. (8)
LAMAR S. SMITH, TX	RALPH M. HALL, TX
CONSTANCE A. MORELLA, MD	BART GORDON, TN
CURT WELDON, PA	JAMES. A. TRAFICANT, JR., OH (4)
DANA ROHRABACHER, CA	JERRY F. COSTELLO, IL
JOE BARTON, TX	TIM ROEMER, IN (5)
KEN CALVERT, CA	JAMES A. BARCIA, MI
NICK SMITH, MI	EDDIE BERNICE JOHNSON, TX
ROSCOE G. BARTLETT, MD	LYNN C. WOOLSEY, CA
VERNON J. EHLERS, MI	ALCEE L. HASTINGS, FL (6)
DAVE WELDON, FL	LYNN N. RIVERS, MI
GIL GUTKNECHT, MN	ZOE LOFGREN, CA
THOMAS W. EWING, IL	MICHAEL F. DOYLE, PA
CHRIS CANNON, UT	SHEILA JACKSON-LEE, TX
KEVIN BRADY, TX	DEBBIE STABENOW, MI
MERRILL COOK, UT	BOB ETHERIDGE, NC
GEORGE NETHERCUTT, JR., WA	NICK LAMPSON, TX
FRANK D. LUCAS, OK	BARBARA LEE, CA (3)
MARK GREEN, WI	JOHN B. LARSON, CT
STEVEN T. KUYKENDALL, CA	MARK UDALL, CO
GARY G. MILLER, CA	DAVID WU, OR
JUDY BIGGERT, IL	ANTHONY D. WEINER, NY (1)
MARSHALL SANFORD, JR., SC (2)	MICHAEL E. CAPUANO, MA (1)
JACK METCALF, WA (2)	BRIAN BAIRD, WA (7)
	JOSEPH M. HOEFFEL, PA (7)
	DENNIS MOORE, KS (7)
	JOE BACA, CA (9)

(1) Elected to the Committee January 19, 1999.

(2) Elected to the Committee February 2, 1999.

(3) Resigned from the Committee February 3, 1999.

(4) Resigned from the Committee February 24, 1999.

(5) Resigned from the Committee March 2, 1999.

(6) Resigned from the Committee May 27, 1999.

(7) Elected to the Committee June 9, 1999.

(8) Died July 15, 1999.

(9) Elected to the Committee November 18, 1999.

106th Congress

Committee on Science

Subcommittees

Basic Research

REP: N. SMITH, *Chair*, BOEHLERT, L. SMITH, MORELLA, GUTKNECHT, EWING, LUCAS, BIGGERT

DEM: JOHNSON, ETHERIDGE, WOOLSEY, LARSON, RIVERS, DOYLE

Energy and Environment

REP: CALVERT, *Chair*, WELDON, BARTON, ROHRABACHER, EHLERS, MILLER, BIGGERT, METCALF

DEM: COSTELLO, DOYLE, BARCIA, JOHNSON, LOFGREN, HOEFFEL, BACA

Space and Aeronautics

REP: ROHRABACHER, *Chair*, L. SMITH, BARTON, CALVERT, BARTLETT, EHLERS, WELDON, CANNON, BRADY, COOK, NETHERCUTT, JR., LUCAS, GREEN, KUYKENDALL, SANFORD, JR.

DEM: GORDON, LOFGREN, JACKSON-LEE, LAMPSON, ETHERIDGE, LARSON, UDALL, WU, WEINER, MOORE, CAPUANO, BAIRD, BACA

Technology

REP: MORELLA, *Chair*, WELDON, BARTLETT, GUTKNECHT, EWING, CANNON, BRADY, COOK, GREEN, KUYKENDALL, MILLER

DEM: BARCIA, RIVERS, STABENOW, UDALL, WU, WEINER, CAPUANO, GORDON, BAIRD

107th Congress

Committee on Science

SHERWOOD L. BOEHLERT, NY, *Chair*

<p>F. J. SENSENBRENNER, JR., WI (1) LAMAR S. SMITH, TX CONSTANCE A. MORELLA, MD CHRISTOPHER SHAYS, CT (2) CURT WELDON, PA DANA ROHRBACHER, CA JOE BARTON, TX KEN CALVERT, CA NICK SMITH, MI ROSCOE G. BARTLETT, MD VERNON J. EHLERS, MI DAVE WELDON, FL GIL GUTKNECHT, MN CHRIS CANNON, UT GEORGE NETHERCUTT, JR., WA FRANK D. LUCAS, OK GARY G. MILLER, CA JUDY BIGGERT, IL WAYNE T. GILCHREST, MD (6) JOHN ABNEY CULBERSON, TX (5) W. TODD AKIN, MO TIMOTHY V. JOHNSON, IL MIKE PENCE, IN (8) FELIX J. GRUCCI, JR., NY MELISSA A. HART, PA JOHN SULLIVAN, OK (9) J. RANDY FORBES, VA (7) (8) (10)</p>	<p>RALPH M. HALL, TX BART GORDON, TN JERRY F. COSTELLO, IL JAMES A. BARCIA, MI EDDIE BERNICE JOHNSON, TX LYNN C. WOOLSEY, CA LYNN N. RIVERS, MI ZOE LOFGREN, CA MICHAEL F. DOYLE, PA (1) SHEILA JACKSON-LEE, TX BOB ETHERIDGE, NC NICK LAMPSON, TX JOHN B. LARSON, CT MARK UDALL, CO DAVID WU, OR ANTHONY D. WEINER, NY MICHAEL E. CAPUANO, MA (1) BRIAN BAIRD, WA JOSEPH M. HOEFFEL, PA DENNIS MOORE, KS JOE BACA, CA JIM MATHESON, UT (3) STEVEN ISRAEL, NY (3) MICHAEL M. HONDA, CA (4)</p>
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(1) Resigned from the Committee February 8, 2001.

(2) Appointed to the Committee February 8, 2001.

(3) Appointed to the Committee February 8, 2001.

(4) Appointed to the Committee May 2, 2001.

(5) Resigned from the Committee June 7, 2001.

(6) Elected to the Committee June 7, 2001.

(7) Elected to the Committee June 28, 2001.

(8) Resigned from the Committee May 16, 2002.

(9) Elected to the Committee May 16, 2002.

(10) Elected to the Committee July 10, 2002.

107th Congress
Committee on Science

Subcommittees

Energy

REP: BARTLETT, *Chair*, ROHRABACHER, CALVERT, EHLERS, NETHERCUTT, JR., BIGGERT, AKIN, HART, SULLIVAN

DEM: WOOLSEY, COSTELLO, JACKSON-LEE, WU, MATHESON, LAMPSON, UDALL

Environment, Technology, and Standards

REP: EHLERS, *Chair*, MORELLA, SHAYS, WELDON, N. SMITH, GUTKNECHT, CANNON, GRUCCI, JR., HART, GILCHREST

DEM: BARCIA, RIVERS, LOFGREN, UDALL, WEINER, BAIRD, HOFFEL, BACA, MATHESON

Research

REP: N. SMITH, *Chair*, L. SMITH, WELDON, GUTKNECHT, LUCAS, MILLER, BIGGERT, AKIN, JOHNSON, GRUCCI, JR., HART

DEM: JOHNSON, ETHERIDGE, ISRAEL, RIVERS, LARSON, BAIRD, BACA, MOORE, HONDA

Space and Aeronautics

REP: ROHRABACHER, *Chair*, L. SMITH, BARTON, CALVERT, BARTLETT, WELDON, CANNON, NETHERCUTT, JR., LUCAS, MILLER, SULLIVAN, FORBES

DEM: GORDON, LAMPSON, LARSON, MOORE, LOFGREN, JACKSON-LEE, ETHERIDGE, UDALL, WU, WEINER

108th Congress

Committee on Science

SHERWOOD L. BOEHLERT, NY, *Chair*

<p>RALPH M. HALL, TX (11) LAMAR S. SMITH, TX CHRISTOPHER SHAYS, CT (4) CURT WELDON, PA DANA ROHRABACHER, CA JOE BARTON, TX (13) KEN CALVERT, CA NICK SMITH, MI ROSCOE G. BARTLETT, MD VERNON J. EHLERS, MI GIL GUTKNECHT, MN GEORGE NETHERCUTT, JR., WA FRANK D. LUCAS, OK JUDY BIGGERT, IL WAYNE T. GILCHREST, MD (5) W. TODD AKIN, MO TIMOTHY V. JOHNSON, IL MELISSA A. HART, PA JOHN SULLIVAN, OK (12) J. RANDY FORBES, VA PHIL GINGREY, GA ROB BISHOP, UT MICHAEL C. BURGESS, TX JO BONNER, JR., AL TOM FEENEY, FL (5) RANDY NEUGEBAUER, TX (10)</p>	<p>BART GORDON, TN (11) JERRY F. COSTELLO, IL EDDIE BERNICE JOHNSON, TX LYNN C. WOOLSEY, CA ZOE LOFGREN, CA (6) (9) SHEILA JACKSON-LEE, TX (7) (9) BOB ETHERIDGE, NC (6) NICK LAMPSON, TX JOHN B. LARSON, CT MARK UDALL, CO DAVID WU, OR BRIAN BAIRD, WA (1) STEVE ISRAEL, NY (2) MICHAEL M. HONDA, CA JIM MATHESON, UT DENNIS A. CARDOZA, CA (9) CHRIS BELL, TX (3) TIMOTHY H. BISHOP, NY (3) (8) BRAD MILLER, NC (3) LINCOLN DAVIS, TN (3)</p>
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(1) Leave of absence from to the Committee February 5, 2003.

(2) Resigned from to the Committee February 5, 2003.

(3) Elected to the Committee February 5, 2003.

(4) Leave of absence from the Committee February 11, 2003.

(5) Elected to the Committee February 11, 2003.

(6) Resigned from the Committee February 12, 2003.

(7) Resigned from the Committee February 13, 2003.

(8) Resigned from the Committee March 4, 2003.

(9) Elected to the Committee March 5, 2003. Jackson-Lee and Lofgren to rank after Davis

(10) Elected to the Committee June 19, 2003.

(11) Hall's position as ranking member vacated and filled by Gordon January 5, 2004,
 and Hall assigned as ranking member after chairman January 28, 2004.

(12) Resigned from the Committee January 28, 2004.

(13) Resigned from the Committee February 25, 2004.

108th Congress
Committee on Science

Subcommittees

Energy

REP: BIGGERT, *Chair*, HALL, WELDON, BARTLETT, EHLERS, NETHERCUTT, JR., AKIN, HART, GINGREY, BONNER, JR.

DEM: LARSON, LAMPSON, COSTELLO, WOOLSEY, WU, HONDA, MILLER, DAVIS

Environment, Technology, and Standards

REP: EHLERS, *Chair*, N. SMITH, GUTKNECHT, BIGGERT, GILCHREST, JOHNSON, BURGESS

DEM: UDALL, MILLER, DAVIS, BAIRD, MATHESON, LOFGREN

Research

REP: N. SMITH, *Chair*, L. SMITH, ROHRABACHER, GUTKNECHT, LUCAS, AKIN, JOHNSON, HART, GINGREY, NEUGEBAUER

DEM: JOHNSON, HONDA, LOFGREN, CARDOZA, SHERMAN, MOORE, MATHESON, JACKSON-LEE

Space and Aeronautics

REP: ROHRABACHER, *Chair*, HALL, L. SMITH, WELDON, CALVERT, BARTLETT, NETHERCUTT, JR., LUCAS, FORBES, BISHOP, BURGESS, BONNER, JR., FEENEY

DEM: LAMPSON, LARSON, UDALL, WU, JOHNSON, JACKSON-LEE, SHERMAN, MOORE, WEINER

109th Congress
Committee on Science

SHERWOOD L. BOEHLERT, NY, *Chair*

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MICHAEL T. MCCAUL, TX	DORIS MATSUI, CA (6)
MARIO DIAZ-BALART, FL	

(1) Elected to the Committee February 2, 2005.

(2) Resigned from the Committee February 16 2005.

(3) Elected to the Committee June 8, 2005.

(4) Resigned from the Committee February 16, 2006.

(5) Elected to the Committee April 4, 2006.

(6) Elected to the Committee May 4, 2006.

109th Congress
Committee on Science

Subcommittees

Energy

REP: BIGGERT, *Chair*, HALL, WELDON, BARTLETT, EHLERS, AKIN, BONNER, JR., NEUGEBAUER, INGLIS, REICHERT, SODREL, SCHWARZ
DEM: HONDA, WOOLSEY, DAVIS, COSTELLO, JOHNSON, LIPINSKI, MATHESON, JACKSON-LEE, SHERMAN, GREEN

Environment, Technology, and Standards

REP: EHLERS, *Chair*, GUTKNECHT, BIGGERT, GILCHREST, JOHNSON, REICHERT, SCHWARZ, DIAZ-BALART
DEM: WU, MILLER, UDALL, DAVIS, BAIRD, MATHESON

Research

REP: INGLIS, *Chair*, SMITH, WELDON, ROHRABACHER, GUTKNECHT, LUCAS, AKIN, JOHNSON, REICHERT, SODREL, MCCAUL
DEM: HOOLEY, LIPINSKI, BAIRD, MELACON, JOHNSON, MILLER, MOORE, MATSUI

Space and Aeronautics

REP: CALVERT, *Chair*, HALL, SMITH, ROHRABACHER, BARTLETT, LUCAS, FORBES, BONNER, JR., FEENEY, MCCAUL, MELANCON, DIAZ-BALART
DEM: UDALL, WU, HONDA, MILLER, JACKSON-LEE, SHERMAN, COSTA, GREEN

110th Congress
Committee on Science and Technology

BART GORDON, TN, *Chairman* (1)

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GABRIELLE GIFFORDS, AZ	TOM FEENEY, FL
JERRY MCNERNEY, CA	RANDY NEUGEBAUER, TX
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JIM MATHESON, UT	MARIO DIAZ-BALART, FL
MIKE ROSS, AR	PHIL GINGREY, GA
BEN CHANDLER, KY	BRIAN P. BILBRAY, CA
RUSS CARNAHAN, MO	ADRIAN SMITH, NE
CHARLIE MELANCON, LA	PAUL C. BROUN, GA (4)
BARON P. HILL, IN	VACANCY
HARRY E. MITCHELL, AZ	
CHARLES A. WILSON, OH	
ANDRÉ CARSON, IN (6)	

(1) Mr. Gordon named Chairman (H.Res. 7), January 4, 2007

(2) Mr. Hall named Ranking Republican Member (H.Res. 8), January 4, 2007

Republican Members assigned (H.Res. 45), January 10, 2007

Democratic Members assigned (H.Res. 75), January 18, 2007

(3) Mr. Reichert appointed (H.Res. 236), March 12, 2007

(4) Mr. Broun appointed (H.Res. 566), July 25, 2007

(5) Ms. Richardson appointed (H.Res. 667), September 26, 2007

(6) Mr. Carson appointed (H.Res. 1256), June 10, 2008

(7) Ms. Edwards appointed (H.Res. 1342), July 15, 2008

Representative Ken Calvert is on leave from the Committee as of 5/10/07.

Representative Michael Honda resigned from the Committee as of 9/19/07.

Representative Jo Bonner resigned from the Committee as of 2/25/08.

Representative Darlene Hooley resigned from the Committee as of 6/10/08.

Representative Paul Kanjorski resigned from the Committee as of 7/15/08.

110th Congress
Committee on Science and Technology

Subcommittees

Energy and Environment

DEM: LAMPSON, *Chair*, COSTELLO, WOOLSEY, LIPINSKI, GIFFORDS,
MCNERNEY, UDALL, BAIRD

REP: INGLIS, BARTLETT, BIGGERT, AKIN, NEUGEBAUER, MCCAUL, DIAZ-
BALART

Technology and Innovation

DEM: WU, *Chair*, MATHESON, MITCHELL, WILSON, CHANDLER, ROSS

REP: GINGREY, EHLERS, BIGGERT, A. SMITH, BROUN

Research and Science Education

DEM: BAIRD, *Chair*, JOHNSON, LIPINSKI, MCNERNEY, CARNAHAN, HILL,
CARSON

REP: EHLERS, BARTLETT, NEUGEBAUER, REICHERT, BILBRAY

Space and Aeronautics

DEM: UDALL, *Chair*, WU, LAMPSON, ROTHMAN, ROSS, CHANDLER,
MELANCON

REP: FEENEY, ROHRABACHER, LUCAS, MCCAUL

Investigations and Oversight

DEM: MILLER, *Chair*, COSTELLO, JOHNSON, ROTHMAN, BAIRD, CARSON

REP: SENSENBRENNER, JR., ROHRABACHER, REICHERT, BROUN

Committee Members Who Served in Other Offices, 1958-2008

(This list is inclusive of the period
from the 85th -110th Congresses)

Albert, Carl, (D-OK) House Majority Whip, 85th-88th (first session); House Majority Leader 88th (second session)-91st; Speaker of the House 92nd-94th.

Allen, George, (R-VA) Governor of Virginia 1994-1998; Senate January 3, 2001-January 3, 2007.

Arends, Leslie, C., (R-IL) House Minority Whip 85-93.

Bergland, Bob, (D-MN) Secretary of Agriculture 1977-1981.

Blanchard, James J., (D-MI) Governor of Michigan 1983-1991; Ambassador to Canada 1993-1996.

Dodd, Christopher J., (D-CT) Senate January 3, 1981-Present.

Durbin, Richard J., (D-IL) Senate January 3, 1997-Present.

Ford, Gerald, R., (R-MI) House Minority Leader 89th-93rd; President of the United States August 9, 1974-January 20, 1977.

Glickman, Dan, (D-KS) Secretary of Agriculture 1995-2001.

Gore, Albert, Jr., (D-TN) Senate January 3, 1985-January 2, 1993; Vice President of the United States 1993-2001; Nobel Peace Prize 2007.

Graham, Lindsey O., (R-SC) Senate January 3, 2003-Present.

Grams, Rod, (R-MN) Senate January 4, 1995-January 3, 2001.

Gregg, Judd, (R-NH) Senate January 3, 1993-Present; Governor of New Hampshire 1989-1992.

Gurney, Edward J., (R-FL) Senate January 3, 1969-December 31, 1974.

Harkin Tom, (D-IA) Senate January 3, 1985-Present.

Heckler, Margaret M., (R-MA) Secretary of Health and Human Services 1983-1985; U.S. Ambassador to Ireland 1985-1989.

Keating, Kenneth B., (R-NY) Senate January 3, 1959-January 2, 1965; U.S. Ambassador to India 1969-1972; U.S. Ambassador to Israel August 1973-May 5, 1975.

King, David S., (D-UT) U.S. Ambassador to the Malagasy Republic 1967-1969; U.S. Ambassador to Mauritius 1968-1969.

Koch, Edward I., (D-NY) Mayor of New York 1978-1989

Krueger, Robert (Bob), (D-TX) Senate January 23, 1993-June 14, 1993; U.S. Ambassador to Burundi 1994-1996; U.S. Ambassador to Botswana 1996-2000.

Luján, Manuel, Jr., (R-NM) Secretary of the Interior 1989-1993.

MacKay, Buddy, (D-FL) Governor of Florida December 13, 1998-January 5, 1999.

Martin, James G., (R-NC) Governor of North Carolina 1985-1989.

Martin, Joseph W., Jr., (R-MA) Minority Leader 85th-89th; Speaker of the House 80th and 83rd.

McCormack, John W., (D-MA) House Majority Leader 85th-87th (first session); Speaker of the House 87th (second session)-91.

McHale, Paul, (D-PA) Assistant Secretary of Defense, Homeland Security 2003-Present.

Metcalf, Lee, (D-MT) Senate January 3, 1961-January 12, 1978.

Mineta, Norman Y., (D-CA) Secretary of Commerce 2000-2001; Secretary of Transportation 2001-2006.

Morella, Constance A. (Connie), (R-MD) Ambassador to Organisation for Economic Cooperation and Development July 11, 2003-November 2007

Nelson, Bill, (D-FL) Senate January 3, 2001-Present.

Pressler, Larry, (R-SD) Senate January 3, 1979-January 3, 1997.

Reid, Harry M., (D-NV) Senate January 3, 1987-Present; Senate Minority Leader 2005-2007, Majority Leader 2007-Present.

Rhodes, John J., III, (R-AZ) House Minority Leader 94th-96th.

Rumsfeld, Donald, (R-IL) Secretary of Defense 1975-1977 and 2001-2006.

Sanford, Marshall, Jr. (Mark), (R-SC) Governor of South Carolina 2003-Present

Simon, Paul, (D-IL) Senate January 3, 1985-January 3, 1997.

Smith, Robert C., (R-NH) Senate December 7, 1990-January 3, 2003.

Stabenow, Debbie, (D-MI) Senate January 3, 2001-Present.

Swett, Dick, (D-NH) U.S. Ambassador to Denmark 1998-2001.

Torricelli, Robert G., (D-NJ) Senate January 3, 1997-January 3, 2003.

Weicker, Lowell P., Jr., (R-CT) Senate January 3, 1971-January 3, 1989.

Wirth, Timothy E., (D-CO) Senate January 3, 1987-January 3, 1993.

Bibliography

Government Publications:

U. S. House of Representatives Legislative Calendar

(By Congress and Committee)

Library of Congress and Federal Depository Libraries

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U. S. House of Representatives: Index to House

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(By Congress and tab numbers)

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(By Congress and House Science and Technology Committee)

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Compilation of Public Law

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(Committee Print)

Library of Congress and Federal Depository Libraries

Government Printing Office, Washington, D.C.

Congressional Record (with Index)

(By Congress)

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Government Printing Office, Washington, D.C.

Congressional Information Service/Annual and Index (CIS)

(By Year)

Library of Congress and Federal Depository Libraries

Congressional Information Service, Inc., Washington, D.C.

Websites:

Committee on Science and Technology

<http://science.house.gov/>

Searchable file: hearings, legislation, and publications

National Academy of Sciences

<http://www.nasonline.org/site/PageServer>

Archives include the PNAS publication back to 1910

National Aeronautics and Space Administration

<http://www.nasa.gov>

Files on the history of NASA and its many programs

National Institute of Standards and Technology

<http://www.nist.gov/>

Searchable fields, lists of programs, products, and services

National Oceanic Atmospheric Administration

<http://www.noaa.gov>

Files on eight areas of interest and news releases

National Science Foundation

<http://www.nsf.gov/>

Searchable fields, a list of publications, and activities

Oral Histories:

Office of Historian, U.S. House of Representatives

The Office holds a collection of oral histories from several current and former Members as well as staff members

Secondary Materials:

Hechler, Ken, *Toward the Endless Frontier: History of the Committee on Science and Technology, 1959-79*.

Committee Print, U.S. House of Representatives, 1980, U.S. Government Printing Office, Washington, D.C. 20402

National Academy of Sciences: *Rising Above the Gathering*

Storm. National Academies Press, 2007, Washington, D.C.



View from a window on the International Space Station. (Photo courtesy of NASA)



In a NIST lab test, flames from a simulated house with combustible exterior walls ignite a similar "house" six feet away. The numbers in the corner are the time (in minutes) since the start of the test. (Photo courtesy of National Institute of Standards and Technology)